

Borough of



Cheltenham.

ANNUAL REPORT OF THE SANITARY CONDITION

ETC., ETC., OF THE
BOROUGH OF CHELTENHAM,
FOR THE YEAR 1904.

BY
J. H. GARRETT, M.D., D.P.H.,
MEDICAL OFFICER OF HEALTH,

Together with the Report of the Chief Sanitary Inspector,

ALSO THE
Annual Meteorological Report by Mr. A. C. Saxby.

"Salus Populi Suprema Lex."

PRINTED BY ORDER OF THE SANITARY AUTHORITY.

CHELTENHAM :

G. F. POOLE, PHOENIX PRESS, BENNINGTON STREET.

1905.

BOROUGH OF CHELTENHAM.

PUBLIC HEALTH COMMITTEE.

THE MAYOR MR. GEORGE DIMMER (*ex-officio*).

MR. ALDERMAN G. NORMAN.

MR. ALDERMAN W. N. SKILLICORNE.

MR. COUNCILLOR E. H. PARSONAGE (*Chairman*).

MR. COUNCILLOR G. O. BENCE.

MR. COUNCILLOR M. DAVIS.

MR. COUNCILLOR E. LAWRENCE.

MR. COUNCILLOR J. PILLEY.

MR. COUNCILLOR H. WAGHORNE.

Town Clerk—MR. R. OWEN SEACOME.

Borough Surveyor—MR. J. S. PICKERING.

MEDICAL OFFICER'S DEPARTMENT.

Chief Inspector of Nuisances—A. E. HUDSON.

Assistant Inspectors—

J. H. LONG. E. J. MANDERS. E. JONES.

Clerk—F. HUDSON.

Medical Officer of Health—J. H. GARRETT, M.D.

CONTENTS.

	PAGE
The Public Health Committee.. .. .	2
Address to the Sanitary Authority	5
Vital Statistics :—	
Summary of Statistics for the Year	7
The Borough of Cheltenham	7
Site and Altitude.. .. .	8
Aspect	8
Geology	9
Climate	9
Population	9
The Birth-Rate	10
The Death-Rate	10
The Infant Death-Rate	10
The Zymotic Death-Rate	11
Table showing Births and Deaths in England and Wales as compared with Cheltenham in 1904	11
Table of Statistics for the last Ten Years	12
WARD STATISTICS :—	
Different Death-Rates in two halves of the Town, 1904	13
Births, Deaths, Numerical and Natural Increase in each of the Six Wards, 1904.. .. .	14
Cancer and Phthisis Death-Rate in each Ward for the Ten Years 1895-1904	15
Death-Rates from All and Several Causes, and Infant Death-Rates in each Ward and in whole Town 1904	16
Alphabetical List of Deaths in Streets of North Ward	17
“ “ “ “ South Ward	19
“ “ “ “ East Ward	20
“ “ “ “ West Ward	21
“ “ “ “ Central Ward	22
“ “ “ “ Middle Ward	23
Deaths in Public Institutions	25
Deaths in Borough belonging to Outside Districts	26
ZYMOTIC DISEASES :	
Deaths from Notifiable and Non-Notifiable Zymotic Diseases in Cheltenham in Ten Years 1894-1903	27
Table showing Zymotic Diseases notified in each Month of 1904, and number treated in Hospitals	28
Diarrhœa	28
Enteric or Typhoid Fever	29
Scarlet Fever	30
Diphtheria and Sore Throat	30

	PAGE
Measles	30
Small-pox and Vaccination	31
Other Zymotic Diseases.. .. .	31
Phthisis	31
The Isolation of Infectious Diseases	31
List giving Number of Cases of Zymotic Diseases which have been Notified since Notification began.. .. .	33
DEATHS CERTIFIED BY CORONER IN 1904 after Inquests	34
DEATHS NOT CERTIFIED IN 1904	34
Local Government Board Tables I., II., III., IV.	35-38
Table of Deaths Registered from all Causes in 1904	38

Work Done:—

Report of Chief Sanitary Inspector	39
Summary of Routine and other Work.. .. .	39
Inspections	41
Improvements to Dwelling Houses	41
Improvements to House Drains	42
Inspections under the Factory and Workshops Act.. .. .	43
Bakehouses	44
Offensive Trades	45
The Corporation Sanitary Certificate	45
List of Houses to which the Sanitary Certificate was granted in 1904	46
Houses Closed as Unfit for Habitation in 1904	47
Improvements in Sanitary Conveniences in Public Houses	49
Slaughter-houses—List of Private Slaughter-houses in the Borough	50
List of Butchers who last year used the Abattoir	51
Number of Animals Slaughtered in the Abattoir during the last two years	52
Unsound and Diseased Meat, &c., Destroyed in 1904 as unfit for the food of man	52
Daries, Cowsheds, and Milkshops	53
Common Lodging-houses	54
Provision of Ash Receptacles	54
Paving of Yards	55

Reports upon Matters of Current Interest:—

The Housing of the Poor Problem	57
The Treatment of the Cheltenham Sewage	59
Privately-owned Sewers.. .. .	60
Public and Private Slaughter-houses	61
Offices and Laboratory for the Health Department.. .. .	62
The use of Preservatives in Food Substances	64
Schools and School Children	65

Appendices :—

Sale of Food and Drugs Act—Return of Articles submitted to the Public Analyst, 1904	67
Annual Report on the Meteorology of Cheltenham, by Mr. Saxby	71



*To the Mayor and Members of the Sanitary
Authority of the Borough of Cheltenham.*

GENTLEMEN,

I have the honour to present my Annual Report for the year 1904.

The year has on the whole been uneventful from the Public Health point of view. The annual death-rate, which is generally looked to as an index of the conditions affecting health which have prevailed in any given year, is a trifle higher for 1904 than for 1903, being 14 against 12·7. The latter figure, however, is quite the lowest record, and the year 1903 appears to have been an exceptionally favourable year throughout the country. To arrive at a correct appreciation of the meaning of the death-rate, it is necessary to take a series of years together for comparison with a previous series of years, and when this is done we obtain evidence of a satisfactory lessening of the death-rate in Cheltenham.

The fact of a lowered death-rate does not, however, constitute a reason for relaxing the vigilance over all the

circumstances which are likely to affect the death-rate, and there are several such circumstances here in play which require the attention of the executive committee. One of the more important of these is the unsatisfactory condition of certain of the sewers, and although the defects are being attended to systematically and surely if slowly, there is a matter in connection with this subject, namely, the dealing with the anomalous private ownership of sewers in Cheltenham, which the Corporation has failed to bring to a settlement after seven years' constant discussion, and this, not owing to any division of opinion upon the necessity of the matter, which is generally acknowledged to have importance and urgency.

I have to acknowledge as usual the friendly and ready assistance of the several officials of the Corporation with whom I have had occasion to consult and work during the past year, and for the great consideration I have received at the hands of all the members of the Public Health Committee during the same time.

I am, Gentlemen,

Your obedient servant,

J. H. GARRETT.

VITAL STATISTICS.

SUMMARY.

Area of Municipal Borough	...	...	...	ACRES	4,477
Rateable Value	...	...	...	£	298,256
Population at middle of last year	...	...	...		50,500
Population in 1901 Census...	....	...	...		49,439
Persons per Acre in the Borough	...	..	...		10.5
Average number of persons per house	1901 Census				4.77
Death-Rate, 1904	...	...	...	Per Thousand Living Inhabitants	14.1
Average Death-Rate for previous ten years	...	...	...	" "	15.2
Zymotic Death-Rate for 1904	...	...	...	" "	.99
Average Zymotic Death-Rate for previous ten years	...	....	...	" "	1.0
Birth-Rate, 1904	...	...	....	" "	19.0
Average Birth-Rate for previous ten years	....	....	...	" "	20.8
Infant Death-Rate (under one year old) per thousand Births, 1903...	...	...	...		133
Infant Death-Rate Average for previous ten years per thousand Births	....	....	...	...	133

The Borough of Cheltenham.

This fine town of 50,000 inhabitants is of the nature of a first-class residential place, very favoured in the beauty of its local surroundings, adorned with numerous gardens and avenues, and built in broad, uncrowded streets, and detached villas. It has no considerable manufactures, or export commerce, and its atmosphere is comparatively bright and smokeless in the absence of factory chimneys, the general aspect of the town being so pleasing as to favourably impress every casual visitor. The several well-known colleges of Cheltenham have also brought distinction to the town, and have given it honourable mention where educational matters are discussed.

SITE AND ALTITUDE: The town is well placed at the foot of the Cotswold Hills where the ground is still sloping

towards the Severn valley. Thus, speaking broadly, there is rising ground everywhere towards the hills, and falling ground everywhere towards the river, the latter being seven miles distant at its nearest point. The gradients, however, throughout are very gentle, and it is only when you get a couple of miles from the centre of the town that the steep escarpment of the Cotswolds is encountered, and hill climbing commences. These hills, within three or four miles of the town's centre stone, rises to a height of about a thousand feet at several points, and the outlying hill called Battledown, situated two miles away in the suburban district of Charlton Kings, rises to 477 feet.

Within the borough boundary the following figures will give a correct idea of the general altitudes. The figures are taken from the ordnance survey :—

	Altitude above mean sea level.
At junction of Leckhampton Road and Old Bath Road	369 feet
At junction of Bath Road and Shurdington Road...	235 „
Cheltenham College	232 „
In Old Bath Road near the East Gloucestershire Cricket Ground	256 „
The Holy Apostles' Church, London Road ...	260 „
Near Borough boundary at base of Harp Hill, Battledown	255 „
Lansdown Crescent	219 „
Montpellier Gardens	222 „
St. John's Church	220 „
All Saints' Church	212 „
Pittville Pump-room	220 „
Christ Church Road near the Church	215 „
In front of Great Western Railway Station ...	187 „
Royal Crescent	189 „
Wellington Square	189 „
The Church of England Training College... ..	187 „
The Gas Works	176 „
Alstone, near the railway	166 „
St. Peter's Church	166 „
Maud's Elm	159 „

ASPECT: The aspect is open towards the North, West, and South-West, The protecting hills are to the East and South-East,

GEOLOGY : The whole of the houses of Cheltenham stand upon the lias clay, or upon sand which overlies the clay. Considerably more than half of the houses of the town have sand beneath them, which varies in depth in one part and another, but there are large areas where the sand is as much as 40 feet or more in depth.

CLIMATE : The meteorological statistics compiled by Mr. Saxby and to be found as an appendix to this report show no peculiarity. The death returns do not indicate any adverse influence that could be attributed to climate. This town seems to suit persons afflicted with chronic bronchial affections. A case of rheumatic fever is rarely seen. Upon this side of the Cotswold Hills the climate is less rigorous, and it often happens that when snow lies in the Thames valley the country remains green about here.

THE POPULATION : I have retained for the purposes of the statistics the same population at which I arrived last year, namely, 50,500. There were 162 new houses brought to completion in 1904, but there do not appear to have been more inhabited houses upon the rate-books than in the year previous, which must mean that there are more houses vacant now than last year. The tendency is to prefer a new house to an older one on account of the up-to-date conveniences to be found in the new house, and in a town like this, whose increase takes place slowly, it is not difficult to build beyond the actual requirements of the population.

We have in our population an excess of females over males, the proportion being nearly as 3 to 2. We have likewise an excess of persons over the age of 55 on account of Cheltenham being a retiring place for persons past the age of their more active life. There are about 15 per cent. of our population over 55 years of age as against about 12 per cent. over 55 in the population of the whole country. These facts are important in estimating our death-rate from cancer. The crude death-rate from this disease has appeared higher here than for the country generally, but this is to be explained by the facts that more deaths take place from cancer at ages over 55 than under, and more in females than in males, and when the death-rate from cancer is corrected for peculiarities of age and sex, it comes out about the same as for the country generally.

THE BIRTH-RATE : The rate of 19 per 1000 living is the

number estimated for last year, and this is, with the exception of one year, the lowest rate recorded. In 1902 the rate was also 19. Last year the rate was 21·3, and the average rate for the previous ten years is 20·8. The average rate for the ten years prior to that was 23·3, so that, although our birth-rate has always been low, there has been an appreciable diminution in the course of 20 years.

THE DEATH-RATE: The rate of 14·1, as compared with ten years' average rate of 15·2, is upon the right side. Last year when I reported the record low death-rate of 12·7, I pointed out that this low rate had resulted very largely from the saving of lives of children under 5 years of age, 70 per cent. of the difference in the number of deaths taking place in 1903 and 1902 having been of children under 5. The increase of 1904 over 1903 is due to a reversal of the difference, 70 per cent. of the increase of deaths which took place in 1904 as compared with 1903 were in children under 5. There was an increase of 36 deaths in children under 1 year old, and these differences strongly suggest the class of lives in which a further reduction of the death-rate may be hoped for in the future.

THE INFANT DEATH-RATE: The deaths of infants under 1 year old rose in 1904 to 133 per 1000 children born, as against 85 per 1000 born in 1903. There were 961 births in the borough last year, and there were 128 deaths under 1 year old. The number 133 represents both the infant death-rate last year and average rate for the last 10 years. Of course as compared with the death-rate in many industrial communities 133 per 1000 born is quite low, but our experience of the previous year (1903), when the infant death-rate was only 87, makes it seem quite possible for a lower rate to be attained.

As the Registrar-General has just recently seen fit to allow Medical Officers of Health to have a return of the births each week with particulars of address, &c., it will henceforward be easy to ascertain the exact relative degree of viability of children born in houses of different class, and to consider the possibility of taking some action to prevent the early deaths of so many infants, for with the increasing tendency on the part of women to shirk the trouble of motherhood, infant lives are likely to come to be held more precious from a national point of view in the future than in the past. From the present

statistics of births it is evident that the mothering of the nation is not being done from the best material. In this town as elsewhere, a very large proportion of all the births have place in the poorer houses, whilst the physically and mentally best developed exhibit but a very limited parentage. It is therefore important indeed that the few that are born of the best should be kept alive.

The chief causes of deaths in infants under a year old last year were:—

Diarrhœa	...	...	...	...	...	...	32
Premature birth	....	...	...	....	...	...	28
Bronchitis and pneumonia...	...	...	...	...	...	...	18
Natural or semi-natural deficiencies (atrophy, debility, etc.)							17
Tubercular diseases	...	...	....	...	...	...	12
Accidents (including 3 overlain)	...	...	...	...	...	...	5
All other causes	...	...	....	...	...	...	16

Total deaths in infants under 1 year old... 128

THE ZYMOTIC DEATH-RATE: This last year rose to about the ten years average of 1 per 1000 living inhabitants, having in the year 1903 been .57. The rise last year was due to deaths from diarrhœa in infants.

Table showing comparative Birth and Death-Rates, Zymotic Death-Rates, and Infant Death-Rates for 1904, all at per 1000 living inhabitants, excepting Infant Death-Rate, which is at per 1000 infants born.

	Birth-rate.	Death-rate.	Death-rate from 7 chief Zymotics.	Death-rate of Infants under one year old.
England and Wales	27.9	16.2	1.94	146
Rural England & Wales	26.8	15.3	1.28	125
76 Great Towns	29.1	17.2	2.49	160
142 Smaller Towns	27.5	15.6	2.02	154
Cheltenham	19.0	14.1	.99	133

Table of Statistics for the last 10 years, shewing Deaths from Chief Zymotic Diseases, and Zymotic Death-rate, and Total Deaths and General Death-rate; also Total Births and Birth-rate per 1,000 of population, and (under 1 year old) Infant Death-rate per 1,000 children born.

	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904
Small Pox ...	...	...	...	...	...	...	...	1	...	...
Measles ...	5	47	2	13	8	2	1	15	...	...
Scarlet Fever ...	...	...	1	6	7	...	1	2	2	3
Diphtheria ...	5	13	6	7	11	4	7	10	3	3
Whooping Cough ...	8	1	22	5	14	...	14	8	5	3
Enteric and Continued Fevers ...	6	9	2	5	5	6	1	2	3	2
Diarrhoea, Enteritis in Infants, &c. ...	13	18	12	16	24	23	16	13	16	39
Total Deaths from seven chief Zymotics...	37	88	45	52	69	35	40	51	29	50
Death-rate from Chief Zymotics ...	·75	1·79	·91	1·06	1·40	·71	·80	1·02	·57	·99
Total Deaths belonging to District ...	827	826	776	804	775	688	757	715	643	714
General Death-rate ...	16·8	16·8	15·8	16·4	15·8	14·0	15·2	14·3	12·7	14·1
Total Births ..	1070	1041	1043	1090	1044	968	1005	945	1062	961
Birth rate ...	21·8	21·2	21·3	22·2	21·3	19·7	20·3	19·0	21·0	19·0
Infant Death-rate per 1,000 Children born ...	156	135	151	146	147	115	111	120	85	133

Ward Statistics.

The differences to be observed in the death-rates from all and sundry causes in the six wards of the town were rather more marked last year than is sometimes the case, although on the whole we get a repetition of our former observations.

First, we may divide the population into two halves: one half, the Northern half of the town, consisting of the North, Central, and East Wards ; the other half, namely, the Southern half, consisting of the South, Middle, and West Wards. Then for these two halves of the town we get the following death-rates per 1000 living inhabitants:—

Table Showing Death-Rates for two Halves of the Town, 1904.		
	Population.	Death-Rate.
North, Central, and East Wards....	25,965	16·2
South, Middle, and West Wards...	24,535	11·9

The North Ward, which has a population of about 10,000 and consists almost entirely of small houses, containing the greater part of our working-class community, distinguished itself last year in several ways. It has the highest birth-rate, this being 30·1 as against 19·0 for the whole town. Its death-rate of 19·3, its zymotic death-rate of 2·09, and its infant death-rate of 196 were all much higher last year than were the same rates for either of the other wards. Thus there is a difference between the general death-rates of the North Ward and of the East Ward, which is the next highest, of 5 deaths per 1000, and between the North and Middle Wards there is a difference of 8 per 1000 inhabitants. The North Ward occasionally has a favourable year, as in 1903, but taking the statistics for a course of years, it stands out almost as prominently from the other wards as in the single year 1904. On account of the high birth-rate of the North Ward, and notwithstanding its higher death-rate, the natural increase of the population takes place, as shown in last year's figures,

nearly twice as fast as in the ward with the next highest birth-rate, namely, the East Ward, and about four times as fast as in the whole town.

Numbers of Births and Deaths with Natural Increase in the Six Wards, 1904.				
	Births.	Deaths.	Numerical Increase.	Per 1000 Inhabitants Natural Increase.
North Ward.....	305	194	111	11·0
South Ward.....	151	106	45	5·5
East Ward	179	124	55	6·5
West Ward	94	80	14	2·0
Central Ward ...	124	103	21	2·8
Middle Ward	108	107	1	0·1

The Middle Ward, with its population of 9,600, increased its numbers last year by 1, its birth and death-rates being practically the same, the low figure 11 very nearly representing both birth-rate and death-rate. This remarkable statement requires explanation. There are a fair number of small houses in the ward where births might be expected to take place, but I think it must be that there are a greater number of houses in this ward as compared with the other wards where births do not take place, the houses being occupied by elderly people and their unmarried children, and also by unmarried business people.

As shown by the deaths returns for last year, the North Ward has an excessive death-rate in all causes affecting infant deaths, including zymotic diseases, tubercular diseases other than phthisis, and diseases of the respiratory organs. It has also the highest phthisis rate and the highest cancer rate. In regard to cancer, however, the fact is not usual, for taken through a course of ten years the cancer death-rate for the North Ward is comparatively favourable. I do not think this can have anything to do with the locality, but rather seems to show that cancer is of less frequent occurrence in the working class than in the higher social grades. The death-rate

for this disease, however, does not appear to go up and down in exact proportion to the numbers of rich and poor respectively in the several wards ; the distribution is more irregular. Cancer is a more or less chronic disease ; frequently it goes on for years before killing the sufferer, and this fact permits of an occasional apparent increase of cases in a district when it happens that several cases that have been ill for some time chance to die in the same year. Thus last year there were more deaths in the North Ward than either of the other wards, though the returns for ten years show just the opposite result. No doubt it would greatly assist our statistics, and possibly lead to useful information concerning the origin and distribution of the disease, if all cases were notified upon first diagnosis in the same manner as the infectious diseases are notified.

As regards phthisis, also taking ten years' returns, the Central and East Wards have more cases than the North.

Cancer and Phthisis Death-Rates in the several wards during the ten years 1895-1904, calculated upon the average populations of the wards during the 10 years, per 100 inhabitants, per 10 years.

Ward.	Cancer.	Phthisis.
North Ward	6·19	8·63
South Ward	8·87	8·12
East Ward	10·25	10·13
West Ward	7·83	6·23
Central Ward	8·49	10·54
Middle Ward	9·45	5·16

Ward Statistics, including Death-rates from all and several causes, and Infant Death-rates (all at per 1,000 living inhabitants, excepting the Infant Death-rate, which is at per 1,000 children born), also Birth-rates, for the year 1904.

	Whole Town	North Ward	South Ward	East Ward	West Ward	Central Ward	Middle Ward
Population ...	50,500	10,023	8,074	8,506	6,803	7,436	9,658
Birth-rate ...	19.0	30.1	18.7	21.0	13.6	16.6	11.2
General Death-rate ...	14.1	19.3	11.8	14.5	11.7	13.8	11.0
Infant Death-rate ...	133	196	100	83	95	137	92
Zymotic Death-rate ...	.99	2.09	.61	.58	.58	1.34	.41
Phthisis Death-rate ...	.61	1.09	.74	.94	.14	.13	.41
Tubercular Death-rate (other than Phthisis)	.55	1.09	.74	.23	.14	.67	.20
Cancer Death-rate (all malignant disease)	1.09	1.39	1.11	1.05	1.02	.80	1.03
Pneumonia, Bronchitis, &c., Death-rate ... (Diseases of Respiratory Organs)	1.84	2.19	.62	.70	.88	1.61	.31

In the following Lists the Deaths are given in the streets in which they occurred. The figures after the name of the chief cause of death represent the age at death, the comma separating one death from another.

NORTH WARD.

Albert street, St. Paul's	...	cancer 60, heart disease 72
Albert street, St. Peter's	...	tubercular enteritis 1 month, cancer 41, 75, heart disease 65, marasmus 1 month
Albion parade	...	pneumonia 87
Baker street	...	enteritis 3 months
Bloomsbury place	...	enteritis 10 months, tuberculosis 53
Bloomsbury street	...	gastralgia 61, heart disease 48, 64, apoplexy 73, intestinal obstruction 66, broncho-pneumonia 4 months, senile decay 86
Burton street	...	bronchitis 1, emphysema 62, enteritis 9 months
Carlton place	...	rachitis 9 months
Cleveland street	...	diabetes 71, marasmus 11 days, meningitis 2, premature birth 10 days, 24 days, cancer of liver 68, whooping cough 7 months
Devonshire street	...	phthisis 43, heart disease 75
Elm street	...	premature birth 1 day, 4 days, cerebral hæmorrhage 22 months, enteritis 1 month, heart disease 64, cystitis 54
Elmstone street	...	gangrene of leg 75
Gloucester road	...	cancer of omentum 67, inanition 15 hours, bronchitis 73
Granville street	...	nephritis 73, cancer 41, 60, phthisis 59
Grove street	...	cancer of rectum 78, phthisis 31, bulbar paralysis 63, malnutrition 1 month, heart disease 62, 65
Hereford place	...	senile decay 69, enteritis 19 months, 11 months, heart disease 66, gangrene of lung 42
High street	...	enteritis 1 month, 5 months, convulsions 21 months, phthisis 47, apoplexy 73, heart disease 44, cirrhosis of liver 52
Hungerford street	...	phthisis 31, apoplexy 81
King street	...	convulsions 2 days, heart disease 43, pneumonia 78
King street gardens	...	enteritis 19 days, debility 16 hours, 2 days
Larput place	...	apoplexy 65
Malvern street	...	premature birth 30 minutes, hemiplegia 56
Market street	...	bronchitis 77, apoplexy 75, pneumonia 79
Marsh lane	...	senile decay 77
Millbrook street	...	bronchitis 81, inanition 1 day, endocarditis 66, senile decay 95
Milsom street	...	heart disease 52
Nailsworth terrace	...	pneumonia 80, 8 months, senile decay 91

New street	...	...	inanition 14 hours, heart disease 50, phthisis 47
Normal terrace	...	...	broncho-pneumonia 30
Park street	...	...	senile decay 86, 78, premature birth 4 days, broncho-pneumonia 2
Queen street	...	...	pneumonia 1 month, bronchitis 75, enteritis 11 months, sarcoma 3, strangulated hernia 53, heart disease 38, broncho-pneumonia 23 months, 19 months
Russell place...	...	...	meningitis 5 months, pernicious anæmia 18
Russell street	...	...	spinal disease 42, hemiplegia 61
St. Paul's road	...	...	strangulated hernia 73, enteritis 5 months
St. Paul's street North	...	...	meningitis 3 months, heart disease 60, bronchitis 59, pneumonia 73
Sandfield road	...	...	found drowned in Chelt 17
Spread Eagle terrace	...	...	cirrhosis of liver 60
Stanhope street	...	...	cancer of stomach 73, senile decay 84, 85, bronchitis 4 months, tubercular meningitis 37, cerebral congestion 2 months, pneumonia 58, 59, gastro-enteritis 11 months, 2 months, heart disease 28
Station street	...	...	heart disease 39
Stoneville street	...	...	influenza 43, cellulitis 86, cirrhosis of liver 27, enteritis 1 month, overlain newly-born, scalds 11 months, senile decay 81
Sun street	...	...	septicæmia 57, phthisis 18 months, marasmus 2 months, 2 months
Swindon place	...	...	bronchitis 79, senile decay 83
Swindon road	...	...	phthisis 25, premature birth 11 days, 20 days, heart disease 63, marasmus 17 days, appendicitis 18, enteritis 3 months
Swindon street	...	...	hæmorrhage after circumcision 3 days, senile decay 76, heart disease 81
Tewkesbury road	...	...	premature birth 1 day, diabetes 67, cancer of uterus 58, phthisis 26, heart disease 76, 64, pelvic abscess 39, enteritis 1 month, 1 month, sarcoma 78, pleurisy 85, cirrhosis of liver 50, bronchitis 18 days
Townsend street	...	...	heart disease 68, senile decay 74
Victoria street	...	...	broncho-pneumonia 7 months, senile decay 70, congenital malformation 8 months
Waterloo street	...	...	phthisis 41, premature birth 24 days, 3 hours, peritonitis 10, diarrhœa 8 months, 10 months.
Whitehart street	...	...	heart disease 57, phthisis 55, broncho-pneumonia 2
Worcester street	...	...	senile decay 85, 74, broncho-pneumonia 80, uræmia 68, diphtheria 9 months
Workhouse (not referred to street of origin)	...	...	heart disease 60, senile decay 94, 91, 82, 67, 75, 78, cancer 45, 64, pneumonia 64, 31, suicide 32, syphilis 22 days

SOUTH WARD.

Avenall's parade	...	...	burns 62
Bath parade	...	...	hemiplegia 80, influenza 76
Bath road	...	...	fall down stairs 78, fibroma and hæmorrhage 33, cancer 36, 70, senile decay 87, 71, senile dementia 78, heart disease 70, premature birth 2 days, 10 days, convulsions 7 months, general tuberculosis 57
Bath street	...	...	heart disease 70, Addison's disease 52
Belmore place	...	...	bronchitis 69
Cambray	...	...	hemiplegia 62, cancer of breast 51, heart disease 67
Charlton lane	...	...	scarlet fever 2, diarrhoea 17 days
Clare place	...	...	cancer 58
Clare street	...	...	heart disease 64
College road	...	...	epilepsy 62, osteomyelitis 14
Commercial street	...	...	senile decay 80, laryngeal phthisis 43, atheroma 75
Corpus street...	...	...	senile decay 91, apoplexy 56, cancer 63, tuberculosis 9, bronchitis 69
Ewlyn road	...	...	senile decay 78
Exmouth street	...	...	acute meningitis 13 months, cancer 76, perinephritic abscess 35
Fairfield avenue	...	...	senile decay 89, phthisis 44, enteritis 2 months
Fairfield place	...	...	bronchitis 6 months
Francis street	...	...	heart disease 49, influenza 62, senile decay 87, overlain 2 days
General Hospital (not referred to street)	...	...	diabetes 30, nephritis 48
Hermitage street	...	...	senile decay 79
High street	...	...	heart disease 45, phthisis 30, nephritis 59
Keynsham road	...	...	phthisis 23, heart disease 71
Langdon road	...	...	apoplexy 72, senile decay 70
London road...	...	...	valvular disease of heart 80
Mitre street	...	...	cancer of larynx 34, gall stones 58
Montpellier retreat	...	...	broncho-pneumonia 9 months, 9 months, gastritis 2 months
Naunton cottages	...	...	fracture of skull 50
Naunton crescent	...	...	gastro-enteritis 20 months, senile decay 83, 87, volvulus 29, apoplexy 76
Naunton lane	...	...	alcoholic cirrhosis 34, heart disease 57, cancer 69
Naunton road	...	...	senile decay 70
Old Bath road	...	...	cirrhosis of liver 45, premature birth 2 months
Oriel road	...	...	nephritis 37
Orrisdale terrace	...	...	general tuberculosis 55
Pilley	...	...	atrophy 4 months, broncho-pneumonia 18, phthisis 23
St. Luke's	...	...	stricture of urethra 53, pneumonia 81, pelvic cellulitis 26, heart disease 86

St. Philip's terrace	...	...	convulsions 2
St. Philip's street	...	...	fall and rupture of liver 49
Sandford Mill road	...	...	alcoholism 52
Sandford road	...	...	suicide by coal gas 49
Sandford street	...	...	general tuberculosis 37, bronchitis 8 months, senile decay 77, apoplexy 80
Suffolk parade	...	...	apoplexy 81
Suffolk road	...	...	fibrosis of lung 71
Suffolk street	...	...	senile decay 78
Thirlestaine road	...	...	apoplexy 42, premature birth 5 months
Upper Bath street	...	...	diarrhoea 16 months, phthisis 23, asphyxia newly born. senile decay 87
Vernon place...	...	...	senile decay 75
Victoria place	...	...	syphilis 41
Wellington street	...	...	bulbar paralysis 49, arterial degeneration 67
Whitecross square	...	...	cancer of omentum 41

EAST WARD.

Albert place	...	...	cancer 50
Albion street..	...	...	senile decay 78, leucocythæmia 55
All Saints' road	...	...	apoplexy 61, nephritis 70, acute eczema 58, cancer 56, 55, asthenia 15 minutes, senile decay 82
All Saints' terrace	...	...	bronchitis 73
Berkeley place	...	...	influenza 50
Brighton road	...	...	senile decay 98, apoplexy 77
Carlton street	...	...	apoplexy 79, 78, senile decay 73
Cemetery road	...	...	senile decay 73
Columbia street	..	...	senile decay 68, meningitis 9, cirrhosis of liver 68, premature birth 1 hour, bron- chitis 60
Denmark villas	...	...	bronchitis 72, 81
Duke street	...	...	heart disease 62, 68, 26, bronchitis 3, phthisis 40, apoplexy 68, 64, premature birth 4 hours
Fairview road	...	...	senile decay 81, abdominal abscess 68, atalectasis 14 hours, heart disease 72, intestinal obstruction 75, diarrhoea 6 months, nephritis 62, angina pectoris 65
Fairview street	...	...	apoplexy 64, 79, convulsions 4 months, heart disease 73
Glenfall street	...	...	senile decay 78, broncho-pneumonia 6 months, phthisis 23
Grosvenor street	...	...	suicide run over by train 34, cirrhosis of liver 67, cancer 85, broncho-pneumonia 54
Hewlett road...	...	...	heart disease 43, 60, senile decay 81, congenital malformation 20 months, anæmia 5
Hewlett street	...	...	senile decay 82, 89, apoplexy 72, caries of spine 18, bronchitis 87

Hales road	...	...	senile decay 72
High street	...	...	phthisis 37, 51, old age 92, cancer 78, broncho-pneumonia 88
Jersey street	...	...	senile-decay 81, enteritis 4 months
Keynsham street	...	...	cancer 76, senile decay 87
Leighton road	...	...	senile decay 85, heart disease 67
London road	...	...	premature birth 7 days, nephritis 46, phthisis 28
Pittville circus	...	...	bronchitis 84
Pittville circus road	...	...	broncho-pneumonia 86
Prestbury road	...	...	cancer of intestine 55, senectus 79, broncho- pneumonia 9 months
Princes street	...	...	heart disease 39
Priory street	...	...	influenza 62, senile decay 84
Priory terrace	...	...	tubercular meningitis 22 months, senile decay 80
Providence square	...	...	heart disease 63, strangulated hernia 74
Rosehill street	...	...	bronchitis 6 months, apoplexy 41, phthisis 43
St. Anne's road	...	...	beri-beri 49
St. Anne's terrace	...	...	tubercular meningitis 3, congenital mal- formation 1 day
St. James' street	...	...	nephritis 40, senile decay 73, 76, gastro- enteritis 1 month, pleuro-pneumonia 60
Selkirk street	...	...	apoplexy 67, heart disease 44
Sherborne street	...	...	heart disease 71
Sidney street	...	...	convulsions 1, meningitis 26, cancer 62, apoplexy 67
Sydenham road	...	...	heart disease 69, gastric ulcer 71
Sydenham villas road	...	...	apoplexy 87, cirrhosis of liver 46
Trinity school lane	...	...	phthisis 68
Union street	...	...	perityphlitis 48, cancer of liver 69, senile decay 71
Upper Park street	...	...	atalectasis 6 hours, bronchitis 6 hours
Winstonian road	...	...	phthisis 48, bronchitis 79
Witcombe place	...	...	whooping cough 19 months
Woodbine cottages	...	...	premature birth half-an-hour
York street	...	...	senile decay 91

WEST WARD.

Alstone	...	...	enteritis 23 months, senile decay 84, 77, cancer 72, sarcoma 20
Ambrose street	...	...	senile decay 85, 81, diarrhœa 6 months
Arle	...	...	epilepsy 40, pneumonia 9 months, 68, debility 2 days
Barnard's row	...	...	Hodgkin's disease 67, heart disease 64
Bayshill road	...	...	diabetes 52
Chapel street	...	...	tuberculosis 20 months, gangrene of leg 76, heart disease 55, bronchitis 6 months, phagedenic ulceration 5
Christ Church road	...	...	pneumonia 62

Eldorado road	...	...	cystitis 82, heart disease 66
Gloucester road	...	...	delirium tremens 40, senile decay 91, 87, cirrhosis of liver 59, cancer of palate 58, heart disease 68
Great Western road	...	...	diarrhœa 77, cancer of uterus 63
Great Western terrace	...	...	influenza 73, heart disease 74
Kensington Avenue	...	...	influenza 33
Knapp road	...	...	heart disease 71, nephritis 71
Lansdown crescent	...	...	phthisis 32, influenza 48, senile dementia 72, typhoid fever 45, continued fever 47
Lansdown crescent stables	...	...	precipitate birth 2 days
Lansdown parade	...	...	nephritis 27
Lansdown place	...	...	apoplexy 74, heart disease 45
Lansdown road	...	...	heart disease 68, 59, cancer of rectum and colotomy 72
Lansdown terrace	...	...	cerebral softening 65
Libertus road	...	...	heart disease 62
Malvern place	...	...	senile decay 90
Malvern road	...	...	heart disease 57
Manchester street	...	...	gastric catarrh 74, bronchitis 59
Millbrook street	...	...	cancer of liver 83, premature birth 2 hours, senile decay 86, enteritis 3 months, heart disease 17
Parabola road	...	...	atheroma 75
Queen's retreat	...	...	premature birth 9 hours
Queen's road	...	...	heart disease 78, 48
Roman road	...	...	premature birth 12 days, heart disease 65, senile decay 80
Rowanfield road	...	...	cancer of breast 85, pleuro-pneumonia 65, bronchitis 69
Royal crescent	...	...	premature birth 7 days
St. James' square	...	...	pneumonia 72, suicide by hanging 48
St. George's parade	...	...	senile decay 88, heart disease 72
St. George's place	...	...	senile decay 75
St. George's road	...	...	heart disease 69, apoplexy 76, arterial sclerosis 51
St. George's square	...	...	heart disease 79
Western road	...	...	pneumonia 69

CENTRAL WARD.

Albert road	...	...	bronchitis 37, broncho-pneumonia 68
Albion street	...	...	bronchitis 77, 73, cirrhosis of liver 55
Beaufort buildings	...	...	bronchitis 33, cancer 79, senile decay 73, heart disease 71
Berkeley avenue	...	...	burns 4, diarrhœa 18 months
Brunswick street	...	...	stomatitis 16 months, broncho-pneumonia 4, pleurisy 55, marasmus 2 months, 2 months, diarrhœa 11 months, hip joint disease 52, heart disease 69, gastro- enteritis 13 months, debility 14 days
Clarence square	...	...	apoplexy 73, hepatitis 61, pneumonia 84

Dunalley parade	...	...	cerebral congestion 8, heart disease 71
Fairview road	...	...	senile decay 81
Gloucester place	...	...	convulsions 5 months, heart disease 45
Grafton passage	...	...	apoplexy 49
Grosvenor terrace	...	...	senile decay 87, diarrhœa 3 months
Hanover street	...	...	renal cirrhosis 64, apoplexy 79
Henrietta street	...	...	marasmus 16 days, broncho-pneumonia 7 months
High street	...	...	pneumonia 67, epilepsy 6
Limekiln row	...	...	diarrhœa 6 months
Marle hill parade	...	...	pneumonia 62, heart disease 84, 50, hemiplegia 78, apoplexy 84
Marle hill road	...	...	rheumatic endocarditis 25
North place	...	...	simple laryngitis 54, hemiplegia 84, senile decay 78
Northfield terrace	...	...	eclampsia 38, premature birth 5 months
Oxford passage	...	...	heart disease 44
Portland square	...	...	senile decay 72, heart disease 52
Portland street	...	...	gummata of tongue 67, apoplexy 85, cancer 71, 80
Portland terrace	...	...	delirium tremens 40
Pittville villas	...	...	disease of liver 83
Rutland street	...	...	enteritis 3 months, heart disease 51, 69, broncho-pneumonia 61, 2, senile decay 81, 82, tubercular meningitis 15 months, cancer 42
St. George's street	...	...	pneumonia 54, senile decay 81, heart disease 16, 74, uterine hæmorrhage—operation 24, enteritis 6 months
St. Margaret's road	...	...	pneumonia 72, heart disease 74
St. Paul's road	...	...	enteritis 3 months, cancer of breast 60, heart disease 3
St. Paul's street North	...	...	pneumonia 68, phthisis 49, tonsillitis 10, cancer of stomach 64, pertussis 7 months
Seagrave place	...	...	nephritis 54, senectus 72, 85
Sherborne place	...	...	senile decay 78, apoplexy 64
Sherborne street	...	...	senile decay 73, apoplexy 57, bronchitis 65
Swindon road	...	...	overlain 1 month, inanition 6 hours
Warwick place	...	...	bronchitis 74
Wellington passage	...	...	apoplexy 63, heart disease 64
Wellington square	...	...	diphtheria 9
Winchcombe street	...	...	suicide by hanging 67, 49, heart disease 36, disease of stomach 16
Windsor street	...	...	intussusception 5 months, paralysis agitans

MIDDLE WARD.

Alexandra street	..	...	heart disease 74, diarrhœa 4 months
Andover street	...	...	premature birth 2 months
Bayshill road...	...	...	pneumonia 81, gall stones and obstruction 83

Brandon place	...	...	senile decay 78, renal tuberculosis 71
Casino place	...	...	broken neck 65, schleroderma 8 days
Church road, Leckhampton			tubercular meningitis 6 years
Clarence street	...	..	cancer of uterus 64
Cloddimore	...	...	suicide 57
Croft street	...	...	severe labour and shock 41
Dagmar road...	...	...	apoplexy 71
Gordon road	...	...	cancer of liver 62
Gratton road	...	...	cerebral softening 58, nephritis 56, atheroma 81
Granley road...	...	...	fall and fracture of skull 59, scarlet fever 5, hemiplegia 81, phthisis 57
Great Norwood street	...		apoplexy 67, cerebral softening 56 senile decay 82
Hall road	...	...	heart disease 71, bronchitis 69
Hatherley place	...	...	apoplexy 78
Hatherley road	...	...	angina pectoris 85, phthisis 37, heart disease 68, broncho-pneumonia 2 months
Hatherley street	...	...	apoplexy 70, senile decay 90, 84, premature birth 12 hours
High street	...	...	premature birth 1 day
Imperial square	...	...	bronchitis 72, enlarged prostate 83, heart disease 75
Lansdown road	...	...	suicide by shooting 51, cancer of stomach 79
Montpellier street	...	...	strangulated hernia 50
Montpellier terrace	...	...	phthisis 41
Montpellier walk	...	...	ovarian cyst 55, heart disease 67
Moorend road	...	...	hemiplegia 67, Bright's disease 68
Moorend street	...	...	sarcoma of thorax 60
Oakfield terrace	...	...	cancer of stomach 70
Painswick road	...	...	apoplexy 70, paraplegia 83, cancer of rectum 74
Painswick lawn cottages	...		premature birth 4 days
The Park	...	...	apoplexy 70, neoplasms in abdomen 59
Park place	...	...	enlarged prostate 86, biliary calculus 86, senile decay 92
Post Office lane	...	...	heart disease 45
Princes road	...	...	heart disease 51, diphtheria 3, septicæmia 14
Promenade	...	...	emphysema 53, enlarged prostate 85, senile decay 81, diarrhœa 79, heart disease 46, injury to brain from fall 68
Regent street	...	...	apoplexy 65, senile decay 86, diarrhœa 5 months
Rodney terrace	...	...	hemiplegia 70, cancer 75, apoplexy 52
Royal parade	...	...	bronchitis 18
Royal Well place	...	...	cancer of pancreas 46
Shelburne road	...	...	appendicitis 16
Short street	...	...	atrophy 4 months, senile decay 73
Shurdington road	...	...	debility 3 days, heart disease 26, apoplexy 85, paralysis agitans 71
Spa buildings	...	...	intestinal obstruction 78, fractured thigh 82
Suffolk place	...	...	cerebral softening 71, heart disease 47

Suffolk square	...	...	Bright's disease 59, chronic alcoholism 50, cancer of stomach 71, result of anæsthetic 38
Tivoli lane	...	...	phthisis 64
Tivoli place	...	...	senile dementia 84, cirrhosis of liver 61
Tivoli road	...	...	heart disease 69
Tivoli street	...	...	nephritis 63, suicide by poison 46, senile decay 79, 70, 70, bronchitis 74, 68
Upper Norwood street	...	...	bronchitis 69, 67, senile decay 90, nephritis 56

Deaths in Public Institutions.

These deaths have all been referren to the localities to which they really belong in the town excepting 13 that died in the Workhouse and 5 that died in other institutions whose former addresses were not obtainable. These 18 have been placed in the wards in which the institutions are situated under "Worhouse," "General Hospttal," &c.

THE GENERAL HOSPITAL.—Fracture of skull the result of fall 59, 50, burns 2, 4, 62, apoplexy 67, strangulated hernia 74, 73, 50, 53, intestinal obstruction 56, intussusception 5 months, heart disease 59, 63, 64, tuberculosis 20 months, 9, volvulus 29, stomatitis 16 months, cirrhosis of liver 60, gangrene of leg 76, gastritis 2 months, acute eczema 58, nephritis 56, 40, 48, 56, meningitis 26, broncho-pneumonia 23 months, 6 months, 9 months, phthisis 43, ovarian cyst 55, malnutrition 1 month, uræmia 50, cancer 62, 46, 60, 69, 56, exfoliative dermatitis 58, gall stones 58, cellulitis of knee 86, diarrhœa 6 months, 18 months, 8 months, marasmus 2 months, acute peritonitis 17, uterine hæmorrhage—operation 24, fall and rupture of liver 49, bronchitis 5 months, caries of spine 18, diabetes 30, cystitis 54, septicæmia 14, result of anæsthetic 38, perinephritic abscess 35, injury to brain from fall 68, syphilis 41, fall from scaffold 44.

THE WORKHOUSE INFIRMARY.—Heart disease 79, 60, 71, 57, 62, 81, 65, 68, 63, 71, 73, 64, senile decay 84, 91, 81, 82, 85, 88, 85, 81, 94, 91, 81, 82, 85, 81, 73, 81, 79, 80, 78, 75, 70, 69, 78, 82, 73, 83, 67, 89, 81, 82, 74, 71, 75, 78, 95, influenza 60, general paralysis 55, epilepsy 40, broncho-pneumonia 61, 54, cancer 78, 83, 45, 60, 49, 50, 64, pneumonia 64, 31, 56, 58, hemiplegia 61, phthisis 31, 47, 57, 59, suicide by cutting throat 32, bulbar paralysis 63, general tuberculosis 37, enlarged thyroid 61, appendicitis 18, apoplexy 64, cirrhosis of liver 68, 50, 52, gangrene of lung 42, Hodgkin's disease 67, hip-joint disease 52, congenital syphilis 22 days, bronchitis 65.

DELANCEY HOSPITAL.—Scarlet fever 5, 2, 3, diphtheria 9, 3, 9 months.

VICTORIA HOME.—Premature birth 2 hours, 5 minutes, inanition 1 day, eclampsia 38, severe labour-shock 41.

IMPERIAL NURSING HOME.—Nephritis 27, osteomyelitis 14.

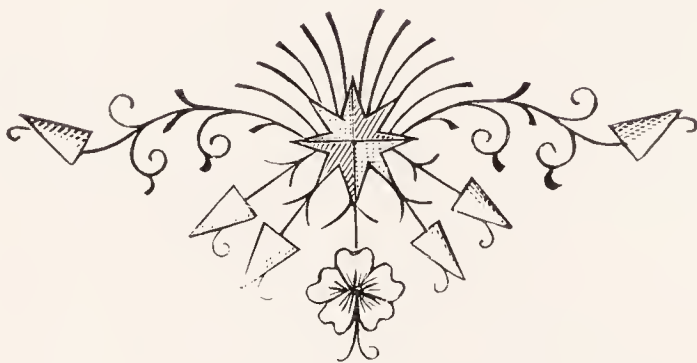
HOME FOR SICK CHILDREN.—Bronchitis 3, general tuberculosis 2, colvulsions 4 months, sarcoma of liver 3, enteritis 13 months, 2 months.

NAZARETH HOUSE.—Heart disease 52, general tuberculosis 57.

Deaths in the Borough belonging to Outside Districts.

It is no possible to make a statement of the number of deaths that occurred in the houses in the town, which were of persons who did not belong to the town. Presumably the number about equalled that of persons belonging to Cheltenham who died elsewhere.

Our institutions however, serve not only the town but the district immediately around, and as there are practically no institutions outside the borough boundary, which, by receiving our invalids, might compensate these deaths, they are properly deducted from the gross number of deaths that take place within the borough. There were 18 deaths last year in the hospitals, &c. of the town that were known to have come in from outside, and there was 1 death registered in Cheltenham of a person who simple walked into the borough from Charlton Kings to die. These 19 deaths only are those which are deducted from our gross number of deaths in estimating our nett death-rate.



ZYMOTIC DISEASES.

The total number of cases notified last year of those diseases that are notified in accordance with law, was about the same as in each of the previous two years, and below the average for the previous 10 years. There are other zymotic diseases however, which are not notified, but which produce a considerable death-rate, and are included in the seven chief zymotics which together constitute the zymotic diseases upon which the zymotic death-rate is calculated. This death-rate is frequently largely affected by deaths in the non-notifiable infectious diseases, which from time to time become epidemic. It is first one disease, and then another, which being the cause of some considerable number of deaths, heightens the death-rate.

Last year there were 50 deaths from the seven chief zymotic diseases in Cheltenham. In the previous ten years 472. Of these seven diseases four are notifiable, namely Small Pox, Scarlet Fever, Diphtheria, and Enteric Fever, and there were 138 deaths in the ten years from these. The non-notifiable diseases of the seven are three, namely, Measles, Whooping Cough, and Diarrhœa, and from these there were 334 deaths.

Deaths from Notifiable and Non-notifiable Zymotic Diseases in the 10 years 1894-1903 in Cheltenham.				
Notifiable zymotics	{	Small-pox	-	1
		Scarlet Fever	-	26
		Diphtheria	-	70
		Enteric Fever	-	41
			Total	138
Non-notifiable zymotics	{	Measles	-	95
		Whooping Cough	-	80
		Diarrhoea	-	159
			Total	334

ZYMOTIC DISEASES NOTIFIED in each month of 1904.						
Month.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Erysipelas.	Small-pox.	Totals.
January	12	4	2	1	...	19
February.....	22	2	...	2	...	26
March	17	4	...	2	...	23
April	9	5	2	2	...	18
May	12	7	...	2	...	21
June	8	7	1	1	...	17
July	6	7	2	1	...	16
August	4	2	...	2	...	8
September ...	5	2	...	2	...	9
October	20	8	...	3	...	31
November ...	19	6	...	4	...	29
December ...	9	5	...	3	...	17
The 12 months Totals	143	59	7	25	...	234
Tot'l No. treated in Hospitals ..	134	28	1	...	...	163

DIARRHŒA.—Zymotic diarrhœa is distinguished from symptomatic diarrhœa, or that which is found in the death-returns generally as occurring in adult or senile people, and not infrequently in connection with some other cause of death. The words enteritis and gastro-enteritis are often also used as synonyms of diarrhœa, and in judging whether or no the disease is of zymotic or epidemic character regard is chiefly had to the age of the person at death. With us the custom is to club together under zymotic diarrhœa every case returned as diarrhœa, enteritis, or gastro-enteritis in infants and young children. The bulk of these cases occur in the first two years of life.

On account of the difference in the practice observed in one town and another of arranging deaths from diarrhœa under zymotic diseases or otherwise, the zymotic death-rates of these towns are not fairly comparable. In accepting practically all deaths from diarrhœa in children as deaths

from zymotic diarrhœa, we are probably more liberal, and less saving of our zymotic death-rate, than many other towns.

From time to time we have had a prevalence in the later summer and autumn months of a zymotic diarrhœa, or enteritis, amongst infants and the younger children. We had such a prevalence last year, the worst visitation of the kind we have had for many years, and the 39 deaths registered from this cause, brought our otherwise very low death-rate from zymotic diseases up to an average rate, for whilst there were 39 deaths from diarrhœa there were only 10 deaths from the other six of the seven chief zymotics.

This diarrhœa or acute enteritis in infants, as it occurs in Cheltenham, is a distinctly epidemic and well defined zymotic disorder. The origin of the disease is uncertain, but is probably in the soil, and becomes specially active in certain years. It always affects the North Ward worst, thus, last year, there were as many cases in the North Ward as in the rest of the Wards together. The adjacent Central Ward being the next worst affected. Whether the matter be viewed in relation to population, or in relation to numbers of births the result is the same in placing the North Ward in the leading position, and this has been the case in former years of prevalence as well as last year. Nor is poverty the cause, nor bad feeding, though these may assist in bringing about a fatal result. The cause undoubtedly lies in a germ, which appears to be related to the sandy soil of the lower part of the town, rather than to the clay ground, if the germ be in the soil according to our surmise. The disease affects particularly very young children, and if the cause be not in the dirt, it must be in the food or the air. The air is not local, nor can there be anything in the local food supply to the infants, e.g. milk, that at recurrent periods of years would bring about a prevalence of the disease. If it be a matter of soil the only remedies would appear to lie in home cleanliness, paving of back yards, watering of streets in dry weather, and these might be only partly preventive. Greater care in feeding during the dangerous time would probably reduce the death-rate from this specific disease.

ENTERIC OR TYPHOID FEVER.—Of this disease there were only 7 cases notified, which is the lowest annual number

ever recorded in the borough. There was one death only and that of a somewhat doubtful case which clearly appeared to have been contracted in an outside district. The very low incidence of typhoid in Cheltenham seems to give a testimonial to the innocence of its water supply although this is partly from a river source. In the ten years previous to last year i.e. 1894-1903 the average incidence of Enteric Fever in Cheltenham was 23 cases per annum.

SCARLET FEVER.—Of this disease, which has at no time been extinct within the borough during the whole period of its notification, there were 143 cases notified last year, against an average annual notification in the previous 10 years of 161. There were few severe cases, the type of the disease remaining of the same mild description as for some years past.

DIPHTHERIA AND SORE THROAT.—Of all the diseases upon our list diphtheria has become the most indefinite since bacterial diagnosis began to be depended upon. There were only 59 cases actually notified, but we might have had almost as many more as we chose by bacterial diagnosis. There was at one time in the year a good deal of mild sore throat, and a considerable percentage of the cases would have yielded the bacillus had it been sought in them all. A decided outbreak of sore throat occurred amongst the scholars of St. James' Elementary School (Girls' department), which led to the school being closed. Swabs taken from the throats of a batch of the children affected, upon the same morning, and equally carefully taken in each case, were sent for examination to a distant bacteriological laboratory, when some were declared to exhibit the diphtheria bacillus, and were consequently to be considered cases of diphtheria, and in an equal number of cases it was not discovered, and those cases could not be considered diphtheria according to bacterial diagnosis; and yet it would not have been rational to suppose that two diseases were the result of the same infection, and the sore throat was distinctly infectious and produced a similar appearance and symptoms. The cause of sore throat, and the relation of the true diphtheria bacillus, and the pseudo-diphtheria bacillus, and sundry other organisms to it, are only partly understood. Later perhaps, the position may become more sure in regard to them.

MEASLES.—Of this disease there has been no death in Cheltenham for two successive years. I am looking forward

to a severe outbreak such as has occurred at intervals of a few years before.

SMALL-POX AND VACCINATION.—There was no case of small-pox last year. The Vaccination Officer informs me that the number of primary vaccinations performed was 552, the births being 961. This is a poor record.

OTHER ZYMOTIC DISEASES.—The 3 deaths from Whooping Cough showed that the town was not badly affected with this disease in 1904. In comparison to many towns Cheltenham is little troubled with whooping-cough. There were 9 deaths attributed to Influenza, and there were many cases. This disease appears to remain prevalent in winter throughout the country, but to have become of milder type, and the attack of shorter duration, more nearly resembling the common catarrh. A considerable number of cases, however, assume an abdominal type producing diarrhœa, colitis, etc.

PHTHISIS.—The deaths from phthisis last year exceeded the number of notifications of the disease received under the system of voluntary notification. There being 31 deaths and 14 notifications. The people, however, have now grown to look upon this disease as infectious, and are agreeable to have their places cleansed and disinfected, at all events after death.

THE ISOLATION OF INFECTIOUS DISEASES.—The Delancey Hospital for Infectious Diseases here last year took in 134 of our 143 cases of Scarlet Fever. Generally a few of what are known as return cases are expected to occur, that is, the conveyance back to the house from the hospital of the infection by the discharged scarlet fever case, and in consequence the return of a new case to the hospital from the same family. In every isolation hospital in the country such cases occur and cannot be entirely avoided. There is no means of knowing when a scarlet fever case is free of infection, a case is usually kept in the hospital until peeling is finished and no apparent sign of the disease remains, and is then discharged with a warning to the parents and guardians, that it is advisable for some days to keep the returning child apart from other susceptible persons. Occasionally after a child is discharged it will develop a running discharge from ear or nose, and become a dangerous source of infection, as these discharges are the most intensely infectious material

connected with Scarlet Fever. They do not occur in a very large percentage of cases, nor at any regular period of the convalescence, and sometimes occur after every other symptom has disappeared. It is not of any use pretending to be able to avoid an occasional conveyance back to the home of infection by these cases. That is a slight risk that has to be run in connection with the isolation of Scarlet Fever. Last year however this risk in Cheltenham was certainly reduced to a minimum, as out of the 101 cases discharged during the year from the hospital cured of Scarlet Fever, we did not get one return case either from the house, or from any known connection or relationship.

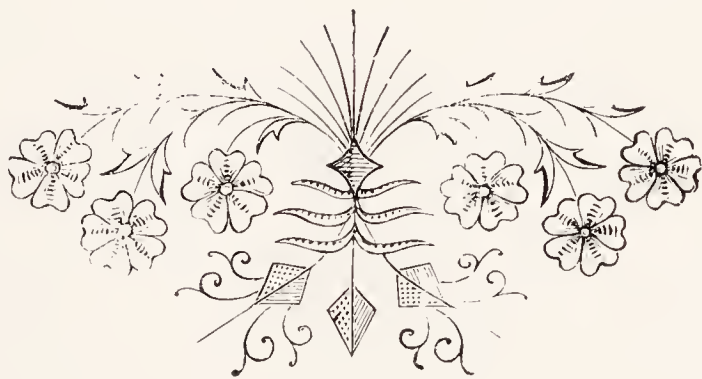
Of the 59 cases of Diphtheria notified 28 or nearly half were treated in hospital. The hospital treatment of diphtheria is of great service, the comfortable treatment of cases in the fine hospital wards contrasting acutely with the conditions under which cases are treated in poor houses. Practically all the severe cases that occurred in the poorer houses in the town last year were sent to hospital.

Typhoid Fever cases also go to the Fever Hospital, whenever cases occur that require admission.

Further information concerning the Delancey Hospital is contained in the Annual Report of the Hospital written by the Medical Officer and Secretary.

The following list gives the numbers of cases of zymotic diseases which have been notified since notification began :—

Year	Scarlet Fever	Diphtheria	Enteric Fever	Puerperal Fever	Small-pox	Erysipelas
1890	93	16	24	2	...	...
1891	75	15	19	...	...	...
1892	264	10	10	...	...	...
1893	419	33	63	4	2	...
1894	147	26	27	1	3	...
1895	89	25	34	3	1	...
1896	126	60	26	4	22	...
1897	224	43	20	1	...	...
1898	296	52	23	5	...	...
1899	273	80	16	...	...	...
1900	103	74	32	1	...	21
1901	67	58	18	1	...	16
1902	147	63	18	3	1	19
1903	142	65	17	...	1	25
1904	143	59	7	...	...	25
Average for all years	174	45	23	1·7	2	21



Deaths Certified by Coroner after Inquests, 1904.

Accidents by falls and injuries from falls	...	...	8
Accidents by burns and scalds	...	...	4
Accidents by suffocation in bed (overlain)	...	...	3
Accidents by fractured thigh	...	...	1
Suicide by shooting	...	...	1
Suicide by hanging	...	...	2
Suicide by poisoning by oxalic acid	...	...	1
Suicide by poisoning by coal gas	...	...	1
Suicide by cut throat	...	...	1
Suicide by strangling	...	...	1
Suicide by being run over by passing train	...	...	2
Found drowned...	...	...	1
Heart disease, weak heart, syncope	...	...	9
Diarrhœa or enteritis in infants	...	...	4
Pneumonia or broncho-pneumonia	...	...	3
Cerebral hæmorrhage	...	...	2
Uræmia	...	...	1
Meningitis	...	...	1
Peritonitis	...	...	1
Precipitate labour	...	...	1
Alcoholic intemperance	...	...	1
Anæsthetic and heart failure	...	...	1
			50

Deaths not Certified in 1904.

Apoplexy at age 70.
Heart disease at ages 64, 74.
Premature birth at age 30 minutes.
Senile decay at ages 73, 78, 68, 78, 75.

Local Government Board Table No. I.—Vital Statistics of whole District of the Borough of Cheltenham during 1904 and previous years.

YEAR.	Population estimated to Middle of each Year.	BIRTHS REGISTERED.		TOTAL DEATHS REGISTERED IN THE DISTRICT						Deaths of Non-registered residents in Public Institutions in the District.	Deaths of Residents registered in Public Institutions beyond the District	NETT DEATHS AT ALL AGES BELONGING TO THE DISTRICT.	
		Number.	Rate per 1,000 of Population.	Under 1 Year of age		At all Ages		Total Deaths in Public Institutions in the District	Number.			Rate per 1,000 of Population	
				Number.	Rate per 1,000 Births registered.	Number.	Rate per 1,000 of Population						
1894	49,000	1008	20.5	130	128	755	15.4	135	23	The Medical Institutions for Cheltenham and neighbourhood are now all within the borough of Cheltenham.	732	14.9	
1895	49,000	1070	21.8	167	156	844	17.2	126	18		827	16.8	
1896	49,000	1041	21.2	141	135	844	17.2	140	18		826	16.8	
1897	49,000	1043	21.2	160	153	800	16.3	133	24		776	15.8	
1898	49,000	1090	22.2	159	146	828	16.8	162	24		804	16.4	
1899	49,000	1044	21.3	154	147	793	16.1	121	18		775	15.8	
1900	49,000	968	19.7	112	115	708	14.4	137	20		688	14.0	
1901	49,500	1005	20.3	112	111	775	15.6	132	18		757	15.2	
1902	49,700	945	19.0	114	120	737	14.8	177	22		715	14.3	
1903	50,500	1062	21.3	91	120	666	13.1	138	23		643	12.7	
Averages for years 1894-1903	49,270	1027	20.8	134	133	775	15.6	140	20.8	...	754	15.2	
1904	50,500	961	19.0	128	133	733	14.5	162	19	...	714	14.1	

Area of District in acres (exclusive of area covered by water) 4,677

Total population at all ages..... 49,439

Number of inhabited houses ... 10,352

Average No. of persons per house 4.77

At Census 1901

For names of Public Institutions receiving sick persons see page 25

Local Government Board Table II.—Vital Statistics of separate Localities in 1904 and previous years.

Names of Localities	BOROUGH OF CHELTENHAM.				NORTH WARD.				SOUTH WARD.				EAST WARD.				WEST WARD.				CENTRAL WARD.				MIDDLE WARD.			
	Population esti- mated to middle of each year	Births registered	Deaths at all Ages	Deaths under 1 year	Population	Births registered	Deaths at all Ages	Deaths under 1 year	Population	Births registered	Deaths at all Ages	Deaths under 1 year	Population	Births registered	Deaths at all Ages	Deaths under 1 year	Population	Births registered	Deaths at all Ages	Deaths under 1 year	Population	Births registered	Deaths at all Ages	Deaths under 1 year	Population	Births registered	Deaths at all Ages	Deaths under 1 year
1895	49,000	1070	827	167	9790	No Return	175	58	8020	No Return	107	22	8242	No Return	131	31	6039	No Return	81	9	6553	No Return	133	26	8870	No Return	92	14
1896	49,000	1041	826	141	9790	No Return	179	51	8020	No Return	133	24	8242	No Return	126	16	6039	No Return	87	7	6553	No Return	123	19	8870	No Return	102	14
1897	49,000	1043	776	160	9790	No Return	158	52	8020	No Return	78	12	8242	No Return	127	27	6039	No Return	69	15	6553	No Return	122	27	8870	No Return	113	21
1898	49,000	1090	804	159	9790	No Return	176	60	8020	No Return	98	10	8242	No Return	114	24	6039	No Return	60	13	6553	No Return	102	21	8870	No Return	99	10
1899	49,000	1044	775	154	9790	No Return	161	57	8020	No Return	94	18	8242	No Return	108	14	6039	No Return	93	19	6553	No Return	104	15	8870	No Return	110	19
1900	49,000	968	688	112	9790	No Return	132	30	8020	No Return	73	11	8242	No Return	106	13	6039	No Return	68	12	6553	No Return	83	19	8870	No Return	109	12
1901	49,500	1005	757	112	9923	332	180	40	7864	142	109	13	8296	170	138	14	6542	128	88	17	7336	136	91	17	9478	97	151	11
1902	49,700	945	737	116	9923	256	173	46	7924	121	108	11	8356	177	132	19	6653	90	59	5	7336	166	117	22	9508	135	110	13
1903	50,500	1062	666	90	10023	303	143	30	8074	146	102	13	8506	194	125	13	6893	107	64	7	7436	167	106	19	9658	145	103	8
Average of years 1895 to 1903	49,300	1029	761	134	9845	297	164	47	7998	136	100	15	8290	180	123	19	6258	108	74	11	6825	156	109	20	9096	126	109	13
1904	50,500	961	733	126	10,023	305	194	60	8074	151	106	15	8506	179	124	15	6893	94	80	9	7436	124	103	17	9658	108	107	10

N.B.—In the first six years of these statistics the deaths in hospitals, &c., are not referred to the respective Wards, but are altogether excluded from the Ward statistics. Since 1900 the deaths in hospitals are included and properly referred to the Wards to which they belong. The deaths in the whole Borough includethose that died in hospitals within the Borough, but which do not belong to the district.

Local Government Board Table III.—Cases of Infectious Disease notified during the year 1904
for the Borough of Cheltenham.

Notifiable Diseases.	Cases Notified in whole District.							Total Cases notified in each Locality.						No. of Cases removed to Hospital from each Locality.					
	At all Ages	Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 & upwards.	North Ward.	South Ward.	East Ward.	West Ward.	Central Ward.	Middle Ward.	North Ward.	South Ward.	East Ward.	West Ward.	Central Ward.	Middle Ward.
Small-Pox .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria	59	1	10	35	7	6	...	12	11	9	8	7	12	6	7	2	2	6	5
Erysipelas	25	2	...	1	1	18	3	10	6	3	2	3	1	...	...	..	..	...	...
Scarlet Fever.....	143	3	24	90	20	6	...	34	23	32	16	9	29	34	20	30	14	8	28
Enteric Fever	7	...	...	4	2	1	...	3	1	1	2	...	...	1	..	...	...	...	...
Totals ...	234	6	34	130	30	31	3	59	41	45	28	19	42	41	27	32	16	14	33

Local Government Board Table IV.—Causes of, and Ages at, Death during Year 1904 in the Borough of Cheltenham.

CAUSES OF DEATH.	Deaths in or belonging to whole District at subjoined Ages							Deaths in or belonging to Localities (at all Ages).							Deaths in Public Institu- tions in District	
	All Ages.	Under 1.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65	65 and up- wards.	North Ward	South Ward	East Ward	West Ward	Cen- tral Ward	Mid- dle Ward	Out- side Dist'ts		
Small Pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever	3	...	2	1	...	...	...	...	1	...	...	...	...	1	...	3
Whooping Cough	3	2	1	...	...	...	...	1	...	1	...	1	...	...	...	...
Diphtheria and Membranous Croup	3	1	1	1	...	...	...	1	...	...	...	1	1	...	...	3
Enteric Fever	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...
Other Continued Fever	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...
Epidemic Influenza	9	...	...	...	...	7	2	1	2	2	3	...	...	1	1	...
Zymotic Diarrhoea and Enteritis	39	32	7	...	...	...	2	19	4	4	2	8	2	...	...	5
Symptomatic Diarrhoea	2	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Other Septic Diseases	2	...	1	...	...	1	...	1	...	...	...	...	1	...	...	...
Phthisis (Pulmonary Tuberculosis)	31	...	1	...	4	25	1	11	6	8	1	1	4	...	...	5
Other Tubercular Diseases	28	12	7	2	...	7	...	11	6	2	1	5	2	1	...	5
Cancer, Malignant Disease	57	...	1	...	1	30	25	14	9	9	7	6	10	2	...	12
Bronchitis	39	7	1	...	1	4	26	9	4	10	3	6	7	...	...	2
Pneumonia and Bronchopneumonia	49	11	6	...	1	12	19	19	4	6	6	11	2	1	...	7
Pleurisy	2	...	...	...	...	1	1	1	...	...	...	1	...	...	...	...
Other Diseases of the Respiratory Organs	4	...	...	...	...	3	1	2	1	3	...	...	1	...	...	...
Alcoholism, Cirrhosis of Liver	16	...	...	...	...	14	2	4	3	3	1	1	2	...	...	...
Venereal Diseases	3	1	...	...	...	1	1	1	1	...	...	1	...	...	...	2
Premature Birth	28	28	...	...	...	...	...	11	4	4	4	1	4	...	...	2
Diseases and Accidents of Parturition	3	1	...	...	...	2	...	...	...	...	1	1	1	...	...	2
Heart Diseases	96	...	1	...	2	47	46	26	9	13	18	16	11	3	...	16
Accidents	18	5	2	...	1	6	4	4	5	...	...	2	5	2	...	9
Suicides	10	...	...	...	...	9	1	1	1	1	1	2	3	1	...	1
All other causes	286	28	6	10	5	61	176	57	46	61	29	64	49	7	...	88
All causes	733	128	37	14	15	232	307	194	106	124	80	103	107	19	...	163

Deaths Registered from all Causes during the Year 1904.

VIII.—Deaths from Ill-defined and Not Specified Causes.

WORK DONE.

SUMMARY OF ROUTINE AND OTHER SANITARY WORK DONE IN
THE HEALTH DEPARTMENT IN 1904, WITH NOTES THEREON.

REPORT BY THE CHIEF SANITARY INSPECTOR.

I herewith submit my report as Sanitary Inspector of the Borough of Cheltenham of the work done in the Department in the suppression and abatement of nuisances during 1904. Following the practice adopted in previous years, a statement of sanitary operations is furnished below. On reference to this it will be seen that during the year 2,353 nuisances were reported in connection with 1,462 houses and premises. To abate these nuisances 940 notices were served upon the responsible persons. In all cases the necessary steps have been taken to remove the nuisances discovered, and the work has been carried out, or is in progress. In addition to the 940 notices served, 304 letters were written requiring structural amendments, and numerous verbal notices have been given where the matter has been one needing immediate attention.

SUMMARY.

Total Number of Houses and Premises Inspected	...	9782
Ordinary Inspections	... ..	3737
House-to-house Inspections	... ..	1264
Re-inspections	... ..	2404
Visits to Slaughter-houses and Butchers' Shops	...	721
" " Common Lodging Houses	... ..	57
" " Houses Let in Lodgings	... ..	120
" " Cowsheds, Dairies and Milkshops	... ..	56
" " Bakehouses	... ..	133
" " Workshops	... ..	383
" " Schools	... ..	170
" " <i>re</i> Infectious Disease	... ..	540
" " Publichouse Conveniences	... ..	197
Complaints Received	... ..	72
Number of Nuisances Reported	... ..	2353
" " Houses and Premises dealt with	... ..	1462
" " Notices Served	... ..	940
" " Letters Written referring to Notices	... ..	304

Drains Opened and Examined under Sec. 41 P.H. Act, 1875	129
Defective Brick Drains removed	61
New Drains laid	218
Length in yards of Stoneware Pipe Drains laid ...	2781
" " " Heavy Iron pipes laid	864
Water Tests Applied to Drains	524
Manhole Disconnecting and Inspection Chambers provided	176
Intercepting Traps fixed	155
Drains unstopped and cleansed	72
Dip and Bell Traps removed	108
Stoneware Gully Traps fixed	469
Corporation Sanitary Certificates granted	37
Soil Pipes and Ventilating Shafts fixed... ..	161
" " " " " " smoke tested ...	192
Lead Waste Traps provided and Lead Traps fitted to Waste Pipes	323
New Impervious Sinkstones provided	202
New Water Closets built... ..	65
New W.C. Pans fixed of the "Wash-down" type ...	289
Old Pan Container Closets removed	14
Flushing Boxes fixed to W.C's	213
Flushing Boxes repaired	66
Urinals built re-constructed, or provided with proper supply of water	25
Samples of Water collected for Analysis by Medical Officer of Health	18
Nuisances from Overcrowding abated	41
" " Overcrowded Workrooms abated ...	14
" " Badly-ventilated Workrooms abated ...	20
" " Smoke abated	4
Rooms cleansed, limewashed, and repaired on notice	390
Bakehouses cleansed and limewashed	24
Slaughter-houses cleansed and limewashed	18
Workrooms cleansed and limewashed	104
Common Lodging Houses cleansed and repaired ...	10
Houses closed as unfit for human habitation	12
Roofs, Eaves, Rain-water Pipes, Gutters, &c., repaired	145
Floors, Yards, and Areas re-paved	223
Manure Receptacles built or re-constructed	28
Accumulations of Manure removed	8
Ash Receptacles (moveable galvanized iron with cover) provided	177

Notices to Parents <i>re</i> Infectious Disease	...	...	128
Notices to Schoolmasters <i>re</i> Infectious Disease	...	...	117
Rooms Fumigated after Infectious Disease	...	....	192
Articles of Clothing, Bedding, &c., disinfected after Infectious Disease	...	... ..	3276
Loads of Clothing disinfected for outside Sanitary Authorities and private persons	...	... ..	15

Inspections.

The total number of inspections made during the past year was 9,782. Of these, 1,264 were house-to-house inspections, 170 to schools to measure up the class rooms, &c., and 197 visits were paid to public-houses to inspect the sanitary conveniences. The remainder of inspections made were the result of complaints received, the occurrence of infectious disease, the inspection of works in progress, and re-inspection to ascertain if notices served had been complied with. The house-to-house inspections revealed numerous structural sanitary defects, in fact more than half the houses inspected were found to have one defect or more requiring amendment. Structural defects as a rule refer to leaky house roofs, walls and floors in bad state of repair, defective yard paving, defective trapping of drains, &c. Numerous cases of overcrowding were also found. This class of nuisance is often very difficult to deal with, as the people are frequently very poor and have large families, and find great difficulty in obtaining a house large enough to meet the requirements to avoid overcrowding and at a rent they can afford to pay. Owners of property also increase the difficulty by refusing to let their houses to people with large families. The owners' reasons for objecting are that the rent is frequently not forthcoming and the children are very destructive and do considerable damage to property, which has to be made good before the house can be let to a fresh tenant.

Seventy-six special complaints were received and careful enquiry made into the circumstance of each.

Improvements to Dwelling-Houses.

A large number of improvements were made in connection with dwellings as the result of notices served. These

improvements vary from trifling repairs to eaves, spouting, rain-water pipes, &c., to re-slating house roofs, underpinning walls and inserting damp-proof courses and the provision of dry areas. 145 roofs, eaves, &c., were repaired, 390 rooms cleansed, limewashed, or repaired, 202 impervious sinkstones provided, 216 flushing boxes fixed to w.c's, and 65 new water closets built, 14 old pan container closets removed, and 289 w.c's of the "wash-down" type fixed. Altogether 2,353 improvements have been made in connection with 1,462 premises.

Improvements in House Drains.

A very large amount of time and attention has again been paid to the condition of house drains. Under Sec. 41 of the Public Health Act, 1875, 129 authorities to enter, open ground, &c., resulted in the service of 113 specifications, and in these cases the specifications include the amendment of every defect in drainage, &c., that can be discovered on the premises, and generally require the re-drainage of the house. In addition to the work under the above-mentioned Act, a good deal of drainage work has been done by verbal notice and also to obtain a Corporation Certificate. Altogether the Inspectors have supervised the laying of 2,781 yards of stoneware pipes, and 864 yards of heavy cast iron drains. Many owners of properties have at my suggestion, when re-draining their premises, put down iron drains even when the drains were laid outside the house, and this I consider is the best and most economical course to adopt on clay soil. Where drains have to pass under a building, or to be laid in clay ground, or where ground is liable to settlement, or when it is desired to secure permanency of soundness in the drain, the iron pipes are by far the cheapest in the end. It is most essential that drains should remain watertight, but this is difficult to obtain with stoneware pipes, especially in shifting ground. Defects in stoneware pipe drains are bound to occur as a result of the movement of the ground in which they are laid. Defects in the pipes are also caused by the shrinkage of cement in setting, slight kiln cracks in the pipes, by the pipes being laid on soft and uneven ground, and by careless filling in of the trench or ramming the ground. Iron drains properly protected by Angus Smith's solution, or some other efficient means, are infinitely to be preferred, with respect to

durability, to such a notoriously brittle and fragile substance as stoneware. The total number of water tests applied to the drains was 524, this number including the tests applied to the drains in sections, and the final test, the latter test being applied on completion of the work, so as to make sure that the drain has not been damaged during the filling in of the trench. The smoke test was applied to 192 soil and vent shafts. In connection with this work no less than 61 old brick drains were removed and replaced by old watertight drains. 108 defective iron D and Bell traps were removed, and 469 gully traps fixed, 176 manholes and inspection chambers have been provided, and 155 intercepting traps fixed. As usual, on the completion of each job a plan is drawn showing the line of drains, and a record is also kept of when the work was done, and by whom done.

Inspections under the Factory & Workshops Act.

A considerable amount of work has been carried out during the year under the above Act. The total number of workshops now on the register is 480, including 106 domestic workshops. A "domestic workshop" is defined as a private house where members of the family regularly exercise manual labour to gain chief means of living. The names and addresses of 98 outworkers were received from their employers. The object of visiting outworkers is to prevent certain specified classes of home work, such as tailoring and dressmaking being done in unwholesome dwellings, and the Town Council have the power to prevent work in these trades being done in any dwelling where notifiable disease exists, even though the patient has been removed to hospital. There is also a penalty for knowingly sending out wearing apparel to be worked on in homes infected with Scarlet Fever or Small-pox. All persons giving out home-work in the following trades, Cabinet and Furniture making, Upholstery work, and the manufacture of Articles of Wearing Apparel, must keep detailed lists of the persons employed on such work. Such lists are to be open to inspection by the officers of the Town Council, and copies of them are to be sent twice a year (1st February and 1st August). If the persons giving out the work fail to supply these lists they are liable to prosecution. The total number of inspections made during 1904

was 383. The chief workshop industries in this town are Dressmaking, Millinery and Tailoring. There are 50 different establishments employing 1,350 persons.

The following defects were found in connection with the workshops during last year. Fourteen workrooms were overcrowded ; twenty insufficiently ventilated ; fifty-one required cleansing ; fourteen defective w.c's.; six defective drains ; and twenty-two floors, walls and ceilings in bad state of repair. All these defects have been remedied. Thirty-nine new workrooms have been opened and 40 rooms have been measured up, and cards supplied with measurements, setting forth the number of persons that may be employed during ordinary hours and overtime. These cards were delivered to the occupier to hang up in the workroom, so that the Inspector on visiting these rooms would by reference to the cards see if the numbers were exceeded and overcrowding taking place.

Our attention has been called to these defects in factories and workshops by H.M. Inspector of Factories :—

Two factories with insufficient w.c. accommodation.

One factory without a sufficient supply of water to w.c.

One factory without a sufficient supply of water for drinking purposes.

Six dirty workshops.

Two workshops with defective w.c's.

Four unventilated workrooms.

All these defects have been remedied and notice to that effect has been sent to the Factory Inspector.

Bakehouses.

There are 53 bakehouses on the register ; of these premises 43 are above ground level and 10 are underground, and these have been visited during the year —133 inspections having been made. It may be advisable to mention here that the above mentioned underground bakehouses have all been altered and amended to the satisfaction of the Corporation as required by the Factory Act 1901, and have been certified as being suitable as regards construction, lighting, ventilation, water supply, drainage, and in all other respects. Eight of these ten underground places were altered during 1904, but the remaining two have been brought up to the

standard of requirements during the present year. Of these two, one only required an improvement in the ventilation and the removal of a gully trap, the other required very considerable alterations to make it suitable. The lighting was very deficient, and this was increased by $8\frac{1}{2}$ superficial feet by the fixing of new windows. The bakehouse was enlarged so as to obtain the necessary 1000 cubic feet of space. New ventilating shafts, inlet and outlet, with an area equal to $3\frac{1}{2}$ superficial feet were provided. The height was increased by $1\frac{1}{2}$ feet, and a new concrete floor, finished off in granite chippings and cement was laid. It was also found necessary to reconstruct the drains which on excavating the ground to lower the floor, were found to be in a defective condition. In connection with the above-ground bakehouses 16 were found to require limewashing and cleansing, two had defective water closets, one required to be redrained, and in one the brick floor was in such a bad state of repair as to render it almost impossible to clean the floor, and it was necessary to order a new floor to be laid of Portland cement concrete and granite chippings and cement. The walls and ceilings of six others were found to be in a bad condition and to require amendment.

Offensive Trades.

There are very few offensive trades carried on in this Borough. The trades in operation here which ordinarily come under the category of offensive trades are two Fellmongers, one Tallow Melter, and four Tripe Boilers. These different trades are all regulated by special bye-laws applicable to such businesses. These bye-laws have on the whole been fairly well carried out, and the complaints received have been fewer than usual.

The Corporation Sanitary Certificate.

The number of certificates granted during 1904 was 37, making the total granted since the commencement of this work 569. The granting of this certificate continues to serve a useful purpose, and probably many more people would apply for it if they knew that by paying the small fee, varying from five shillings to a guinea according to the rental of the house,

they could be furnished with a report as to the sanitary condition and a specification of the work (if any) required to be done to put the house into thorough sanitary condition. If the work specified is carried out, it is tested, and on satisfactory completion a certificate is given. The requirements are fairly comprehensive, but not more so than should be expected to obtain a certificate that is really of value. The certificate practically guarantees the house to be up-to-date in regard to all its sanitary appliances, and the drains, soil pipes, &c., must be proved absolutely sound and watertight. The certificate is continually in demand, and a house that is certified is more valuable, either from a letting or selling point of view. A number of the lodging-house keepers have obtained a certificate, and I am sure it would be to the advantage of all to obtain one, as it must tell considerably to the advantage of those who are able to point to one hanging in its frame in the entrance hall of the house, when people call to look at the rooms.

**List of Houses to which Sanitary Certificates
were granted in 1904.**

					Gross Annual Value.
Ablington, Lansdown Road	...	...	...	...	£120
Arlington, Leckhampton Road	...	...	...	...	40
Battledown Grange	...	...	...	...	100
Bays Hill Lodge	...	...	...	...	65
Bedford House, The Park	...	...	...	...	35
Belle Vue Place, No. 5	...	...	...	...	40
Bibury, Montpellier Drive	...	...	...	...	45
Camperdown, St. Stephen's Road	...	...	...	...	120
Camden Villa, Clarence Road	...	...	...	...	25
College Road, No. 8	...	...	...	...	30
Fairfield, Charlton Lane	...	...	...	...	30
Fleetwood, Sydenham Road South	...	...	...	...	32
Imperial Square, No. 9	...	...	...	...	60
„ „ No. 12	...	...	...	...	60
Keynshambury, High Street	...	...	...	...	50
Malvern Place, No. 5	...	...	...	...	60
Maribham, Eldorado Road	...	...	...	...	63
Montpellier Villas, No. 13	...	...	...	...	19
Oakfield, The Park	...	...	...	...	120
Park Place, No. 14	...	...	...	...	35

					Gross Annual Value.
Park Place No. 25	...	...	...	...	£60
Pierreville, Overton Road	...	...	...	...	70
Pittville Lawn, No. 14	...	...	...	...	52
Pittville Villas, No. 6	...	...	...	...	45
Priory Street, No. 6	...	...	...	...	25
Promenade, No. 30	..	...	...	...	80
„ No. 31	...	...	...	...	80
Promenade Terrace, No. 5	...	...	...	...	75
Royal Parade, No. 1	...	...	...	...	50
„ No. 20	...	...	...	...	60
Rylstone House, Montpellier Parade	...	...	...	...	100
Suffolk Square, No. 8	...	...	...	...	65
The Limes, Bayshill Villas	...	...	...	...	95
The Pines, Tivoli Road	...	...	...	...	105
Thirlestaine Lodge	....	...	...	...	225
Thornton, Montpellier Drive	...	...	...	...	50
Tixall, Ashford Road	...	..	...	...	65

Houses Closed as Unfit for Human Habitation under Sec. 32 of the Working Classes Act, 1890.

During the year the Medical Officer of Health represented to the Public Health Committee, in conformity with the provisions of the above Act, twelve houses as unfit for human habitation. Of these, six were in such a condition that they could not reasonably be made fit for human habitation. Three of these houses were situated in Barnard's Row. These have been demolished and the ground area cleared. Two other houses situated over stables were in a bad state of repair, extremely deficient in light and ventilation, and without proper conveniences for storing food, coals, &c.

The remaining house is in Little's Court, and is an extremely small house, consisting of one room down and one upstairs. Two adult persons badly overcrowd this house even on the small allowance of 300 cubic feet of space per head. It is badly placed in a narrow passage, it is damp and dilapidated, the lighting and ventilation both being very deficient, and the windows overlook the w.c's for adjoining houses.

Of the other six houses closed three were at Brunswick Terrace. Two out of these three were in such a bad state of repair that the owner was recommended to demolish them

and erect some new premises. He accepted our suggestions, and a new shop and house is now being erected on the site. Nothing has yet been done to the remaining house, but the owner has been supplied with a detailed specification of the work required to be done to put the premises into habitable condition.

Two houses in Exmouth Buildings, Bath Road, also closed as unfit for habitation, are in such a ruinous condition that the owner has decided to pull them down and erect new buildings, in accordance with the building bye-laws, on the same site, and has deposited plans for this purpose for the approval of the Town Council.

A house in Fairview Road was found to be in extremely bad state of repair and very deficient in ventilation, especially the bedrooms, one of these being without fireplace or other means of ventilation excepting the windows. The rooms in this house are very small; two adult persons occupying any room would overcrowd it. The house consists of a scullery and two living rooms on ground floor, and two rooms misnamed bedrooms on the first floor. As these rooms are so small it may be of interest to give the size and cubic contents of each room.

Front living room 8ft. 3in. x 7ft. 3in. x 7ft. 8in. high, cubic capacity 459 cubic feet; back living room 8ft. x 6ft. 3in. by 7ft. 8in. high, cubic capacity 383 cubic feet, the front bedroom is exactly same size as front living room; back bedroom 8ft. x 5ft. 9in. x 7ft. 8in. high, cubic capacity 352 cubic feet. At the time the house was closed it was occupied by man, wife, and four children under 10 years of age. A very bad case of overcrowding, and one can scarcely imagine how foul and offensive the air would become when the whole of the family were packed in the front room (which was the chief living room) at meal times, and during the winter evenings. The bye-laws relating to "Houses let in Lodgings" require 400 cubic feet per head for sleeping rooms, and 500 cubic feet per head where the room is used for both living and sleeping purposes, and these amounts are the minimum, and, are considerably below the amount theoretically required to keep the air of a room up to the standard of purity. Yet here we found two adults and four children occupying a room for a considerable portion of the day which is not more than large enough for one person.

At the close of 1903 five houses known as Gunnel's cottages were closed as unfit. These five cottages with a washhouse, two w.c's., and an ash place stood on the very small ground area of 44 by 41 feet. To deal with this block of cottages satisfactorily was a rather difficult matter. Eventually it was decided to have two of the houses and the washhouse pulled down to the ground and the site upon which they stood converted into an open space for the yard. The remaining three houses were converted into one large house, the internal walls and ceilings of which were altered so as to make a good sized kitchen, parlour, scullery and pantry, and three decent sized bedrooms with a minimum height of ten feet. A new roof was provided and new sash windows to all the back rooms of a suitable size, and new floors laid where necessary. The back external wall was cement rendered and a damp proof course inserted in the walls. A new washhouse and coal-house was provided, the drains re-laid and the whole of the yard asphalted. By the demolition of the two houses, and the amendments and alterations to the remaining three, a small insanitary area has been cleared and a good sanitary dwelling provided. I may mention in this connection that during the last few years much useful work has been done by the demolition of two or three houses in narrow ill-lighted, badly ventilated and crowded courts, thus letting more light and air into the remaining houses, which were also repaired and made into sanitary dwellings.

Improvements in Sanitary Conveniences in Public Houses.

The sanitary conveniences in connection with the Public Houses in this town have all been visited during the year. Of the 195 licensed houses visited, the urinals or sanitary conveniences of 25 were found to be without a proper and sufficient supply of water, or in bad state of repair due to faulty construction, or in a foul condition from neglect to cleanse same. Notices were served upon the owners to provide necessary accommodation, re-build or re-construct the urinals on sanitary principles, and to provide flushing apparatus and lay on water for flushing purposes.

Slaughter-houses.

The number of private slaughter-houses is now eighteen, and these are all registered places.

Three licensed slaughter-houses which had been in use for several years past ceased to be used as such at the end of December, 1904, the Town Council having refused to grant any further licenses to these places. Not one of these three butchers, however, have gone to the Abattoir to do their killing. One is doing his slaughtering at a registered slaughter-house with the permission of the occupier, another is using a registered place which he recently purchased, whilst the third is doing all his killing at a slaughter-house erected outside the borough.

The bye-laws relating to the periodical limewashing of the walls of the private slaughter-houses, and the removal of the skins, etc., have been fairly well observed. Frequent inspections have been made to these places, and the meat killed in them was inspected as often as it was possible to do so.

List of Private Slaughter-houses at present in Occupation.

Mr. F. Beckingsale	... 187, High Street
Messrs. Stroulger & Co.	... 93, „ „
Messrs. Turner & Co.	... 424, „ „
Messrs. Holiday & Page, Ltd.	Bath Street
Messrs. Waghorne Bros., Ltd.	Prestbury Road
Mr. B. Coombe	... Sherborne Place
Mr. F. Knight	... 5, Mountpleasant
Mr. G. S. Tarr	... Victoria Street, Gosditch
Mr. W. A. Davis	... Dunalley Street
Mr. C. Fryer	... St. James's Terrace
Mr. J. T. Burrows	... Upper Bath Street
Mr. T. James	... Commercial Street
Mr. E. R. Bloxham	... Bath Terrace
Messrs. Waghorne Bros., Ltd.	4, Adelaide Buildings, Bath Road
Messrs. Holliday & Page, Ltd.	Brunswick Street
Mr. A. Ashcroft	... Gosditch
Messrs. Williams & Co.	... Grosvenor Terrace

List of Butchers who last year used the Abattoir.

General Butchers.

Mr. W. Alcock	... Moorend Street
Mr. S. Burrows	... Fairview Road
Mr. G. Collins	... 278, High Street
Mr. F. Davis	... Charlton Kings
Messrs. A. D. & D. Downham	... 3, Exchange Buildings, Bath Rd.
Mr. E. T. Drew	... 95, Winchcomb Street
Mr. Dickenson	... Prestbury
Mr. J. C. Green	... 162, Albion Street
Mr. J. Hayward	... 2, St. Mark's Emporium, Gloucester Road
Mr. Hodges	... 317, High Street
Mr. H. James	... Clare Terrace, Bath Road
Mr. Jenkins	... Bath Road
Mr. J. Lane	... 267, High Street
Mr. F. W. Pleydell	... 288, " "
Mr. H. T. Pryer	... 308, " "
Mr. W. J. Pugh	... 341, " "
Mr. G. Taylor	... St. Paul's Street
Mr. T. Verrinder	... Hewlett Road
Messrs. Waghorne Bros., Ltd.	346, High Street
Mr. F. Waghorne	... 4, Tivoli Buildings
Mr. C. F. Willis	... 309, High Street
Mr. G. Willis	... Regent House, Swindon Road

Pork Butchers.

Mr. F. P. Carrick	... 294, High Street
Mr. J. Fisher	... 249, High Street
Miss Gwinnell	... Winchcomb Street
Messrs. Yarnold & Sons	... 296, High Street
Mr. A. Smith	... 280, " "
Mr. J. Jackson	... 243, " " (grocer)
Mrs. Burrows	... 279, " " (baker)
Mr. L. Giles	... 76, Tewkesbury Road (baker)
Messrs. Locke and Sons	... 17, Clarence St. (confectioners)

**Number of Animals Slaughtered in the Abattoir
during the last two years.**

	1903		1904
Beeves	948	.....	583
Calves	657	.....	639
Sheep	6660	.....	4067
Lambs	946	.....	621
Pork Pigs	1400	.....	1277
Bacon Pigs	147	.....	187
	10,758		7,354

The decrease in numbers killed at the Abattoir is chiefly due to Messrs. Waghorne Bros. Ltd. having left the Abattoir and taken a private slaughter-house.

**Unsound and Diseased Meat, &c., Destroyed Last
Year as Unfit for the Food of Man.**

- (a) Seized and Destroyed on Magistrate's Order :
- 1 barrel of fish.
 - 40 bananas.
- (b) Seized, or Surrendered, and Destroyed by consent of owners in writing :
- 1 carcase of beef—affected with generalized tuberculosis.
 - 2 forequarters of beef—affected with tuberculosis.
 - 2 hindquarters of beef—affected with a disease incidental to parturition.
 - 12 pigs—affected with tuberculosis.
 - 1 pig—affected with dropsy.
 - 1 parcel of unsound pigs' heads.
 - 3 sheep—emaciated with chronic disease.
 - 30lb. of mutton from three sheep on account of bruising.
 - The lungs, livers, and the other internal organs of 180 animals which were locally diseased.

Total weight of meat, &c., destroyed: 2 tons 2 cwt. 10 lbs.

Of the two beasts affected with tuberculosis it was found necessary to destroy the entire carcase and offal of one, as, although it was a well-nourished animal, weighing 924 lbs., the disease was so extensive and generalized as to render it necessary to destroy the whole of the carcase.

In the other case the two forequarters and the whole of the organs were destroyed, while the remainder, which, after careful examination of the glands, was found to be free from disease, was passed.

Of the twelve pigs found to be affected, the entire carcasses and offal were destroyed, the disease being in a generalized form. Our attention was drawn to twelve pigs which had been slaughtered belonging to one owner, of these four were so badly affected with tuberculosis as to render their destruction necessary. The disease seemed to have got among these pigs from some common source, whether the food or something else it was impossible to say. One pig was so badly affected with dropsy as to render the carcass entirely unfit for food.

Dairies, Cowsheds, and Milkshops.

The whole of the 55 milkshops and dairies, and the 14 cowsheds in the Borough have been inspected during the year. Nine applications have been received from persons desirous of having their premises registered for the sale of milk. In all cases the premises were inspected as to their sanitary condition and suitability for carrying on this trade, and four were ultimately registered, and five were refused on account of the unsuitability of the premises. The cowsheds as a whole have been kept in a fairly satisfactory condition, and the limewashing and cleansing required by the bye-laws have been duly carried out. There are 55 milk vendors on the register, of whom 18 are confectioners or refreshment house keepers, leaving 37 milk vendors who sell milk for consumption off the premises. These 37 may be divided into two groups, namely (1) dairies, (2) general shops selling milk. At the dairies only milk, butter, and mineral waters are sold as a rule. At the general shops, various kinds of grocery and provisions are sold, and in many cases, soap, firewood, onions, potatoes, vegetables, etc., are also sold. These have been on the register for some years; latterly any applicant desiring to sell milk in a general shop had been refused registration. The dairies sell most milk, probably about 65 per cent. of the total, and are managed in a more satisfactory and cleanly manner than the general shops. The milk is stored on the counter in metal or earthenware pans

without covers or lids in 44 shops, and in the remaining 11 shops the pans are covered either with muslin covers or metal lids. I do not think it is asking too much of all milk vendors who store milk on counters that they take the simple precaution of preventing the milk from becoming polluted by covering the storage vessels with suitable covers.

Common Lodging-Houses.

The number of Common Lodging-Houses now registered in this town is six, providing bed accommodation for 138 lodgers. There has been no change of occupiers, and the bye-laws regulating these places have been well observed. These houses have been visited frequently, both by day and night, when they were found to be conducted in a satisfactory manner.

The sleeping accommodation of one house having been considerably increased by the addition of two large bedrooms it was found necessary to require more kitchen accommodation as the underground room which was used for kitchen purposes was found to be badly overcrowded and totally insufficient for the needs of the lodgers. This underground place had for some time proved unsatisfactory, the lighting and ventilation both being bad. A new kitchen nearly three times as large as the old one has been provided on the ground floor by pulling down the cross walls of two houses and removing staircases, making a long room 30 feet by 13 feet by 8 feet 9 inches, giving a total cubic capacity of 3412 cubic feet. The room is well lighted and ventilated, and a vast improvement on the old underground room.

Ash Receptacles.

The Cheltenham Improvement Act, 1889, provides that every house shall have a receptacle for ashes and domestic refuse, of such a sort as shall be approved by the Corporation. The best type of receptacle for general use is undoubtedly the galvanized iron moveable ash bins, and it would be better if the whole of the fixed ash places could be abolished, and metallic bins substituted. By the use of these covered, impervious, moveable receptacles, and the regular weekly collection of refuse, a very large number of insanitary and

uncovered ash-pits, containing large quantities of decomposing matter, giving rise to a decided nuisance, have been got rid of. During the year 177 of these moveable ash receptacles have been provided, bringing the total provided during the last ten years up to 4,226. The general adoption of these bins is, we hope, only a matter of time, as the advantages accruing from their use is appreciated wherever they have been adopted.

Paving of Yards.

One very important part of the house is the yard connected therewith. In the majority of the older houses in the town the yard is frequently unpaved, the surface being rough and uneven, or else it is of soft red bricks. As a consequence of this want of paving, and where it does exist of pervious red bricks, the rain which falls upon the surface, and the dirty water which is thrown from washing up bowls, etc., cannot drain away into the gully traps, the result is that the ground below to a depth of some inches becomes saturated with all kinds of liquid refuse, rendering the ground very soft and muddy. Frequently the w.c.'s. and washhouses are at some distance from the house, and in many cases no proper path is provided, so that to reach these places the occupants have to tramp through the muddy ground, and as a result a considerable amount of dirt is taken into the house. In hot weather the ground becomes dry and dusty, and a good deal of this foul soil is blown about and carried into the house, and may settle upon the food, and in this way may be taken into the system by the occupants.

It is to be remembered that these yards, especially yards which are used in common by several houses, are generally used as playgrounds for the children, and as a drying ground for clothes after washing, it is therefore essential that they should be covered with some kind of impervious paving material. A paved space around a house, laid with a proper slope, enables rainwater to drain off rapidly and prevents soakage. Cleansing is facilitated and encouraged, and filth, possibly containing disease germs, is removed instead of contaminating the soil and passing into the house in the shape of dust or mud. The best kind of paving for these small yards is good asphalt laid on a solid foundation at least five

inches thick. During the year 223 yards, areas, and open spaces around houses, having a superficial area of 1264 yards have been paved, these were found to be in such a condition as to necessitate their surfaces being covered with impervious material. Several large common yards have been paved with asphalte, adding considerably to the comfort of the people residing in the houses, it has also had a good effect on the tenants who take more pains to keep both the houses and yard clean. Another advantage gained from this paving of yards is the abolition of a number of fowl runs, and the keeping of rabbits and pigeons, which were more or less a nuisance.

A. E. HUDSON, M.R., San. Inst.

Chief Sanitary Inspector.



The Housing of the Poor Problem.

Since last reporting upon this subject no advance has been made in Cheltenham in the provision of improved dwellings for the very poor. Though the matter is not here of such vital and pressing importance as in many of the larger industrial towns, there are amongst our 10,000 or 15,000 very poor people a considerable number who are badly housed. The Inspectors find some cases of overcrowding each month, and the worst of these are dealt with by notice to abate the nuisance caused, either by means of shifting into a larger house, or permanently sending away a portion of the family, lodgers, or inhabitants of the overcrowded house. The agents who have the letting of the small properties are getting more wary as to whom they take as tenants, and poor persons with large families of children, are sometimes now refused as tenants, chiefly on account of the wear and tear of the property bearing a closely equivalent relationship to the character of the family and the number of children it contains. The tendency is also for more rent to be asked for letting to a poor large family than to a small family respectably well-off, presumably on the principle that the greater risk there is of getting the rent and of damage being done to the property, the greater must be the money paid for the place. I have met with several instances lately where the family appeared exceptionally poor, and the rent paid exceptionally high. This is sound business, but adds to the difficulty the very poor experience in getting homes.

We have closed a few more houses as unfit for habitation, and the work of amending the structural conditions of dwelling-houses goes on interminably, batches of notices with detailed specifications of works required being dispatched to owners of properties after every meeting of committee or council which gives authority for the service. But there is no active private enterprise in the building of houses to let at the lowest rents ; the tenants to be provided for are too impecunious, and the investment consequently too precarious. Nor does the Municipality seem inclined to increase its liabilities by entering into so unprofitable a work now that its eyes are opened to all the difficulties of the situation.

It has been suggested—not by a Medical Officer of Health—that in order to meet the too great cost of providing

houses for the very poor the building rules should be relaxed, and amateur builders be admitted to a go-as-you-please freedom in putting up houses according to their own plans, in wood, or any other material which may come cheaper, than the substantial structures ordinarily demanded in building byelaws. We are asked to revert to former conditions ; go back a step or two towards mud huts, and leave our descendants the same sort of legacy left to us by our ancestors in the form of insanitary houses built in our time. I hardly think this will be permitted. We have plenty of trouble with the houses erected by builders, who have managed to evade some of the byelaws. The complaint of the times just antecedent to the making of the byelaws, when the term "jerrybuilding" was invented, is also still ringing in our ears, and many instances of jerrybuilding are to be met with everywhere. Let us stick to the standard of building adopted, and endeavour to pull the poverty-stricken part of the populace up to it, instead of going any way down towards the cabin of the Irish peasant, or the "freehold" farm-house of the dirty Breton. Health, and common decency, and everything else that distinguishes humanity from a brute animalism is better in the better-built houses. The poor must have a house that can be cleansed if you want them to keep it clean, convenience for washing if you want them to wash, and convenience for cooking if you would give them the benefit of well cooked food. If you would give them health and vitality the house must be dry and light, and sufficiently large.

It is said the building byelaws require to be amended. That they require to be extended is much more certain. What cant it is to pretend to deplore the inability of the working man's wife to cook a dinner, when she was reared in a house that never possessed an oven. Even in this town there are houses without ovens, and large numbers where the oven is of such a size as hardly to admit a dinner plate, the oven door probably loose at the hinges, or not capable of being shut to within three-quarters of an inch more or less.

The opportunity to obtain radical alterations in structure and fixtures in existing houses only comes when they are closed as unfit for habitation, and as that cannot be done with any considerable frequency, a set of good byelaws for the regulation of existing houses would be of great advantage. Perhaps the required powers may come in the next "Housing of the

Working Classes Act.” There was nothing in the last Act that is likely to have much effect in the provision of better houses for the poor.

The Treatment of the Cheltenham Sewage.

For many years, and up to this date, the Cheltenham sewage has been treated by passing it first through a tank in which some settlement of detritus and heavier solids takes place, and afterwards distributing it upon land by the system of broad irrigation of the surface, which is chiefly cultivated as permanent pasture. The nature of the land is mainly a heavy clay, and consequently not well suited for sewage purification, as its filtering power is of the slightest, and the neighbouring brook is consequently polluted to some extent, although the degree of pollution is not so great as is the case with the brooks receiving the effluents from the sewage farms of many other towns, nor is the general nuisance of the sewage farm so noisome as in many other places. The farms are situated in thinly populated localities, traversed by unfrequented bye-roads, and Cheltenham itself does not suffer from any nuisance occasioned by its sewage, in fact I am sure that few of the inhabitants of the town have ever smelt the sewage, or have any idea where the sewage farms are. The numbers who suffer prejudice, namely those who live in the houses that exist on the borders of the farms, are few, but have a right to consideration. However, under these circumstances it was not to be advised that the Corporation should introduce a new system of sewage treatment, at a very large cost, too hurriedly, when some important experiments were being made upon sewage treatment in various parts of the country, and a Royal Commission was taking evidence as to the best mode of treatment. Within the last ten years an entirely new method of sewage treatment has been evolved, dependent upon the principle of the solution and breaking up of the organic matters of the sewage by the intermediation of bacteria. Many experiments upon a large scale have now been made, and it has been fairly established, that the offensive matter of sewage can be destroyed by being converted into gases, and inorganic salts, by holding up the sewage in tanks, and afterwards passing it through specially prepared filters, when, both in tank and filter, the useful micro-organisms do

their work, the result being a clear inodorous water no longer capable of polluting the stream into which it is ultimately turned.

Of course it is not improbable that some further modifications of the process will be discovered, which will tend to lessen the cost of treatment of sewage by these bacterial methods. There have already been so many modes of sewage treatment, that have been brought in to be tried for a time and abandoned, that it is somewhat difficult to think that we have yet arrived at the ultimate end of the subject. There is, however, no room for any doubt that if tanks and filters of a sufficient capacity and proper kind are used, the result is greatly superior to, and much less offensive than, the system by which the Cheltenham sewage is treated at the present time, as mentioned above.

As the result of their enquiries into the new mode of sewage treatment, and being somewhat urged by the importunate demands of persons living near the sewage farms, by the Rural District Council, the County Council, and ultimately the Local Government Board, the Cheltenham Corporation has instructed the Borough Surveyor to report upon the best system of bacterial treatment of sewage for adoption here, and I believe his report is in course of preparation, and likely to be presented within a reasonable time.

Privately-owned Sewers.

The circular of the Local Government Board which sets out the duties of the Medical Officer of Health lays stress upon the importance of the annual report of that officer, and states that it affords an opportunity of mentioning the advice given and acted upon during the year, and of repeating advice which has been given and not acted upon. In six successive annual reports I have referred to the detrimental circumstance of certain of the sewers of Cheltenham being held to be private property, which cannot be touched by the Town Council without trespass, unless permission from the owners of the sewers has been first obtained. The Borough Surveyor was some three or four years ago instructed to report upon the condition of these privately-owned sewers in the district of Tivoli, which is the district chiefly affected. He reported the sewers to be old $4\frac{1}{2}$ inch brick-barrel sewers in very bad

state of repair, so far as a chief part of them is concerned, the remaining part being pipe sewers badly laid, and in faulty condition, and he clearly showed the need of an extensive re-sewering of the district, and even estimated the cost. Much evidence has been since obtained as to the bad condition of these sewers, and I have raised the question of dealing with them, not only in my annual reports, but upon many other occasions in the Public Health Committee during the last seven years. My advice upon the matter is as it has always been—first, that all the required renewals and repairs should be immediately carried out ; secondly, that the sewers be made to vest in the Corporation, as all other sewers do. Seven years is a long time for this matter to have drifted without settlement, and the fact of its still remaining unsettled adds nothing to the sanitary reputation of the town, or the efficiency of its government.

Public and Private Slaughter-Houses.

The principle of substituting a public abattoir for the numerous private slaughter-houses, which I have advocated continuously through the whole time I have held office here, has come but little nearer being put into practice by the abolition of the private places, and the extension or even full use of the existing abattoir. The 18 private registered slaughter-houses that remain here cannot be put out of use without compensation being paid in money to both owner and occupier of each slaughter-house, and considering that hardly one of these places was built for the purpose of a slaughter-house, but are old buildings converted to this use, this seems the most extraordinary application of the idea of “vested interests” conceivable.

The expense of buying out this right of slaughtering in these old registered places is so considerable that the Corporation declines to face it, and waits the advent of some general law which will compel butchers to kill their animals in a public establishment, where the animals, the process of killing, and the meat, will be under proper surveillance.

In the existing state of things the butchers have several reasons for clinging to their private slaughter-houses, one being that compensation value which they expect to obtain when the places are no longer allowed to be used as slaughter-

houses ; this is quite separate from, and probably greater than the actual value of the places as buildings. The butchers' representatives upon the Town Council do not encourage the use of the abattoir, but criticise and depreciate it, although they are themselves, practically speaking, the responsible managers of the abattoir. The firm of butchers making the largest use of the abattoir left it a year ago and took a vacant private slaughter-house, with the result that a smaller use was made of the abattoir last year than before. This of course is very unsatisfactory, and shows how badly a new law is required to cause all slaughtering to be done in the public place. Last year the whole of the private slaughter-houses in the borough were diminished by three as the result of the refusal to relicence this number of places that had before been used under annual licence. This brings to an end the whole of those used under licence, all that now remain being of the permanently registered kind.

Offices and Laboratory for the Health Department.

When some years ago the Health Department of the Cheltenham Corporation was reorganised, on account of the crowded condition of the offices in general use as Municipal Offices, some unsuitable and what were supposed to be temporary apartments were appropriated to the use of the Medical Officer of Health and his staff. As the Municipal Offices were at that time and for some years later the property of one of the officers, the Corporation being his tenants, the other officers were in a somewhat difficult position in regard to making complaint, and when at last complaint was made of the inappropriateness of the offices of the Health Department, it was not viewed with favour, or in any way helped by the owner of the property. Previous to his demise and since, the question of new Municipal Offices has been mooted upon several occasions but without practical result, and although the Public Health Offices have been inspected on more than one occasion by Committees of the Corporation, who have unanimously agreed upon their discomfort and unsuitability, the position remains the same as a dozen years ago. There is one small room for the work of the Chief Inspector and the whole of the under staff, which as a matter

of fact is overcrowded if considered as a work-room under the Factory and Workshops Act, by the staff alone, not to mention members of the public, builders and others, several of whom are sometimes in the place at one and the same time, relating their business in presence of each other, whilst the clerk is doing his typewriting, and the inspector is endeavouring to make out a specification of work required to be done upon notice. Through this inspector's room, up steps, and through a passage rudely boarded off from a neighbouring space, and which has to be used as a place to keep old books, disinfectants, and things mentionable and unmentionable, the Medical Officer of Health is come at. There are two little rooms opening one beyond the other, the first is the office, the second the laboratory. They were formerly very small bedrooms in an old house. The ceilings are $7\frac{1}{2}$ feet from the floor; the office is small, ill furnished, and uncomfortable, and the laboratory too small and low for considerable use, the ceiling tumbling down, the walls damp, and the place always dirty on account of the necessity of continually keeping the window open, as you cannot breathe in the place otherwise, much less work in it. But for twelve years the public health work of the Borough has had to be carried on in these apartments.

In every town of importance, a municipal laboratory is now a necessity. The need for it is constantly felt, almost daily there is some work or other required to be done in the laboratory—chemical, bacteriological, or microscopical, or the more gross examination of diseased animal organs, meat, and other material from the slaughter-houses and elsewhere. It is true that central laboratories have been established in London and a few provincial centres, and they are helpful to the numerous small urban and rural districts throughout the country, but that town which has its Medical Officer of Health giving his whole professional time to the duties of his post, is at a loss, unless it has a good laboratory of its own, and the inconvenience and disadvantage are great of sending things to distant places to be examined by persons who are not acquainted with the local circumstances, such use of distant laboratories must also be limited on account of the expense, and loss of time, and what perhaps is of most consequence, loss of interest by the local Medical Officer of Health. Practically speaking, the Medical Officer of Health

pays as much attention to work of this sort as he thinks fit. The town is dependent upon him to take interest, and exercise his abilities in making every enquiry into the cause of disease which would tend to safeguard the public, by such analyses, bacteriological studies, microscopical examination, etc., as he may think well to make, and find time to enter into, but this cannot be expected of him, unless he be provided with the means, and particularly with a comfortable place in which to work. It is not to the advantage of any Corporation that the offices of its workers should be unfit, or uncomfortable, and in no sense is it good policy to have them so. A good many towns appear to have appreciated this fact and have built good offices, but this town cannot be numbered amongst them at the present moment.

The Use of Preservatives in Food Substances.

The knowledge derived from the study of bacteriology has led to the very free use of chemical substances having antiseptic properties to prevent putrefactive and other fermentations taking place in various articles intended for consumption as food. Formally salt, vinegar, and sugar were practically the only preservatives in use, salt being chiefly used for meat, vinegar for vegetables in the form of "pickles," and sugar in the preserving of fruit as jams, etc. Salt when in excess could be got rid of to a large extent by soaking the salted meat in fresh water before cooking, whilst vinegar has a slight dietetic value without being in any way injurious under normal conditions of health, and sugar has a decided food value. Of late years, however, other substances have been introduced as effective preservatives, and of these boric and salicylic acids, free, or combined with soda as borax and salicylate of soda, are in the van, and have come to be used with very great freedom in preserving those food materials that are naturally prone to an early decomposition when untreated and exposed to the air.

Whilst it would be absurd to prohibit the use of these preservatives, their use nevertheless requires to be put under proper regulations. In the first place the purchaser and user has a right to know when the article he is purchasing contains any of these substances ; secondly, the quantity permitted to be used requires limitation, since they have a decided drug

action, which may adversely affect some persons quickly, others slowly, and everyone ultimately. Unfortunately it is possible to use very large quantities without detection, as the substances are odourless and not strong of flavour. The materials preserved appear fresh, and are sold as such, when they are not fresh, nor equal to fresh. Sometimes, notwithstanding the effect of the preservative, they have undergone changes, and may be full of some sort of germ and its products, though it be not that putrefaction of flesh, souring of milk, etc., to which we are accustomed, and which causes us to reject food materials when offered to us in that condition. The signs of decomposition may not be so definite as that and yet be present, but even supposing there is no growth of germs, and no apparent change or decomposition, the preserved material is no more fresh than is salted meat, or pickled cabbage, whatever it may seem to be. All fresh foods are deteriorated by having mixed or incorporated with them antiseptics to permit of their being kept a longer time than ordinary. And to this disadvantage must be added the active harm which is likely to accrue from the constant swallowing of the antiseptics themselves, which may be specific remedies for certain diseases when administered for limited periods and in proper doses, but are likely to prove highly deleterious when taken for indefinite periods. These are the reasons why the whole subject of the use of preservatives demands legislative attention and regulation. The latest preserved food material which has come to my notice is tripe, sent from America in kegs, the tripe being boiled and immersed in a pickle of salicylate of soda. In some of the kegs the preservation had, in a way, failed in its purpose, and a profuse growth of a bacillus was setting up a kind of decomposition quite special to itself, altogether different to any ordinary putrefaction, almost odourless, but sufficiently unpleasant to contemplate when discovered.

Schools and School-children.

Towards the end of last year I visited each of the Elementary Schools of the town, some of them several times, to take notes for a Special Report upon the Elementary Schools of Cheltenham, which has just been printed. In that report I have entered into the details of the existing hygienic

condition of the schools, and of their surroundings and adjuncts, and made some notes upon the medical inspection of school-children and the feeding of school-children. This report dealt with the public elementary schools only. In regard to private schools, they have hitherto been viewed as coming into a different category, and no attempt has been made to prescribe the conditions in their case, which are essential to the health of the scholars. At a Conference on School Hygiene held quite recently, one of the resolutions passed was to the effect that private houses and premises used as day or boarding schools ought to be subject to regulation by the Sanitary Authority as to the numbers permitted to use the school rooms and dormitories. I am quite sure that such a power is badly wanted, as some of the private schools are overcrowded, and the general hygienic conditions as bad as in the public elementary schools.

At the same conference, the age of 6 years was voted to be the limit of youth at which children should first be allowed to go to school. The law requires them to begin to go to school at 5 years of age, and infants between 3 and 5 are admitted. From an educational point of view, I believe, infant schools are of slight value. Teachers inform me that the children who come to school before they are 5 years of age do not get in advance of those who begin later, and the cost of infants' schools, which constitutes a very considerable part of the national educational bill, would almost appear to be money spent in vain. The herding together of small children in schools greatly assists the spread of infectious diseases amongst them. The risk of a child getting such a disease as measles, for instance, is very much enlarged when it is sent to school, and the risk of this disease, and perhaps others, is greater amongst infants than amongst older scholars. The infants at infant schools ought not to be shut up in the school-room for so long a time per diem as they are. Whenever the weather will permit, a large part of their school time ought to be spent in the open air. In town schools this necessitates a good playground for them, with a hard, clean surface and a roof over a portion of it, a provision hardly to be found in one school in Cheltenham. For if infant schools are to be continued they should be looked upon as a means of assisting the good growth of the body, and as an aid to taking care of the children, rather than with the idea of

setting them mental tasks, or beginning their education in the ordinary sense of the word. There is one reason which opposes itself to the abolition of infant schools, and this is the want of care which children are likely to suffer when left at home. Home ought to be the best place for them; in well-to-do homes it is the best place both for their bodily and mental development, but in the poorest houses the children are generally much neglected, and for most reasons are better anywhere else than at home. Consequently if infant schools as such were abolished, it would be necessary to substitute some means apart from schools for the care and development of the younger children. It seems, however, impossible to think of any scheme which would avoid the dangers of massing the children, as good individual homes cannot be created, excepting in the natural way.

Sale of Food and Drugs Act.

*Return of Articles submitted to the Public Analyst during the year 1904,
with the results of the Analyses.*

(G. Embrey, Esq., Gloucester, Public Analyst.)

Samples submitted by Superintendent A. W. Hopkins.

Quarter ending March 31st.

Articles submitted.	Result.
2 Samples of Gin, genuine.	
14 „	Milk, 12 genuine; 2 adulterated with 10 per cent. added water; 1 fined £3 and costs £2 5s. 5d.
6 „	Whiskey, 5 genuine, 1 doubtful.
2 „	Brandy, genuine.

Quarter ending June 30th.

No Samples submitted.

Quarter ending September 30th.

3 „	Gin, genuine.
7 „	Milk, 5 genuine; 2 poor and suspicious.
4 „	Whiskey, all genuine.

Quarter ending December 31st.

4 „	Butter, all genuine.
12 „	Milk, 9 genuine; 2 adulterated with 12 per cent. and 6 per cent. added water. Fined respectively £4 and £1 1s. 6d. costs, and £2 and 17s. 6d. costs,

ANNUAL REPORT

UPON THE

Meteorology of Cheltenham,

BY

MR. A. C. SAXBY,

Borough Meteorologist for the Year

1904.

LATITUDE $51^{\circ} 53' 45''$ N. LONGITUDE $2^{\circ} 3' 21''$ W.

HEIGHT OF BAROMETER ABOVE MEAN SEA LEVEL 206ft.

THE INSTRUMENTS ARE ALL OF THE HIGHEST QUALITY,
AND HAVE BEEN VERIFIED AT KEW.



*To the Mayor, Aldermen and Councillors of the
Borough of Cheltenham.*

GENTLEMEN,

I beg to present to you the Annual Meteorological Report for Cheltenham during the year 1904.

The instruments are all in good order, the Thermometer Screen has been painted throughout and the Anemometer oiled and attended to periodically.

The Charts recording the bright sunshine have been regularly received from the Head Gardener at Pittville and the amount of sunshine duly calculated by myself.

The observations have been regularly taken at 9 a.m. and 9 p.m. by myself or one of my assistants.

Weekly and Monthly Reports have been sent to the Meteorological Society, also published in the "Cheltenham Examiner" and "Gloucestershire Echo."

The Secretary of the Meteorological Society made an official inspection of the Station and tested all instruments. He says the Sunshine Recorder is in a most satisfactory position. The detail of his report I am submitting to you separately.

I beg to tender my best thanks to those observers who have sent me returns from various stations over the county, and to all who have assisted me in the work.

I am, Gentlemen,

Yours respectfully,

AUSTIN C. SAXBY,

Borough Meteorologist.

February, 1905.



THE METEOROLOGY OF CHELTENHAM.

Abstract of Meteorological Observations taken at the Montpellier Gardens, Cheltenham—the Barometer being at 397, High Street—by A. C. SAXBY, Borough Meteorologist.

Latitude 51° 53' 45" N. Longitude 2° 3' 21" W. Height above Mean Sea Level, 206-ft.

1904. Month.	Corrected Mean of Barom. 9 a.m. & p.m.	AIR TEMPERATURES.										Relative Humidity at 9 a.m.	Rainfall.		Sunshine. Bright
		Means of			Absolute Max. and Min.				Total fall	No. of Rainy Days.					
		9 a.m.	Max.	Min.	Date.	Max.	Date.	Min.							
January	INCHES. 29·835	° 38·9	° 44·5	° 35·2	27	° 52·6	23	° 25·3	IN.: 2·41	23	H. M. 34 53				
February	29·898	38·5	43·0	35·0	20	53·4	19	27·3	3·67	23	57 40				
March	29·980	40·4	46·8	36·4	9	57·1	12	22·3	1·29	17	100 5				
April	29·957	49·4	55·6	41·7	8 & 18	63·4	16	35·0	1·00	12	170 0				
May	29·932	53·3	60·2	45·1	16	69·7	8	35·2	2·52	15	155 20				
June	30·086	63·3	65·6	49·2	30	74·4	4	43·6	0·94	9	233 0				
July	29·855	64·6	72·7	56·1	10	82·4	8	47·5	2·63	13	239 10				
August... ..	30·011	62·3	68·6	52·4	23	82·4	25	40·5	2·13	13	223 12				
September ...	30·064	56·5	63·5	47·4	30	68·9	30	39·3	2·10	9	176 18				
October	30·138	50·8	56·6	43·7	18	66·9	29	33·9	0·40	10	102 51				
November ...	30·019	41·7	47·3	36·2	9	59·4	24	68·0	1·56	12	70 35				
December.....	30·087	39·6	44·6	35·7	4 & 17	56·4	24	24·3	1·76	21	40 10				
Totals	359·962	599·3	669·0	514·1		787·0		391·0	22·41	177	1603 14				
Means	29·988	49·9	55·7	42·8		65·6		32·6	1·87		133 36				
	1	2	3	4	5	6	7	8	10	11	12				

NOTES ON THE TABLES.

(See previous page).

COLUMN 1 is the mean reading of the Barometer at 9 a.m. and 9 p.m., corrected for temperature and reduced to mean sea level.

COLUMNS 3 to 8.—The maximum and minimum thermometers are read and set at 9 p.m., and entered to same day.

COLUMN 9.—The relative humidity is calculated by dividing the elastic force of aqueous-vapour at the temperature of the dew-point for the month by that at the temperature of the air.

COLUMN 12.—The amount of bright sunshine is registered by a Jordan's Twin-cylinder Recorder, which is mounted on the top of Pittville Pump Room.

WIND.

The observations of Wind are taken at 9 a.m. and 9 p.m. The general directions are as follows :

				%
From the North	...	...	...	0·009
„ North-East	..	...	...	0·08
„ East	...	...	...	0·03
„ South-East	...	...	...	0·14
„ South	...	...	...	0·8
„ South-West	...	...	...	0·31
„ West	...	...	...	0·12
„ North-West	...	...	...	0·09
There were Calms	...	...	...	0·15

North-East Winds prevailed in March.

South-East „ „ January.

South „ „ February, September, December.

South-West „ „ April, May, June, July, August,
November.

West „ „ October.

COMPARATIVE TABLE OF THE METEOROLOGY OF
CHELTENHAM FOR THE YEARS 1878-1904.

Year.	Atmospheric Pressure.	MEAN AIR TEMPERATURES				Humidity.		Rainfall	
		Max.	Min.	Mean	Range	9 a.m.	9 p.m.	Inches.	Days.
	INCHES.	°	°	°	°	%	%		
1878	29.913	56.1	41.5	48.8	14.6	83	88	33.18	176
1879	29.944	52.2	38.5	45.3	13.7	87	89	32.63	212
1880	29.971	55.8	40.5	48.1	15.3	85	88	33.72	177
1881	29.957	55.0	38.9	46.9	16.1	82	85	25.28	185
1882	29.914	55.9	41.5	48.7	14.4	81	86	37.92	214
1883	29.964	55.6	40.6	48.1	15.0	85	89	29.93	204
1884	29.978	56.8	41.9	49.3	14.9	84	89	24.04	190
1885	29.930	54.8	40.0	47.4	14.8	84	87	26.45	193
1886	29.912	55.0	40.6	47.8	14.4	83	86	32.55	193
1887	30.029	55.3	38.6	46.9	16.7	80	83	22.78	153
1888	29.959	53.8	40.1	46.9	13.7	82	84	28.85	195
1889	29.971	55.4	40.6	48.0	14.8	84	87	27.07	181
1890	29.959	55.6	40.1	47.8	15.5	84	88	20.09	191
1891	29.957	55.1	40.0	47.5	15.1	83	87	33.14	192
1892	29.948	54.6	38.7	46.6	15.9	82	85	19.45	175
1893	29.990	59.1	41.3	50.2	17.8	81	83	19.91	169
1894	29.963	56.2	41.6	48.9	14.6	83	87	29.12	194
1895	29.923	56.2	39.6	47.9	16.6	83	87	24.99	174
1896	30.030	57.0	41.4	49.2	15.6	83	86	21.54	185
1897	29.969	56.8	42.8	49.8	14.0	82	86	26.23	191
1898	30.009	58.2	42.5	50.3	15.7	82	85	24.23	173
1899	29.989	58.5	41.2	49.8	17.3	81	85	25.72	162
1900	29.928	57.3	41.1	49.2	16.2	80	84	28.44	203
1901	29.966	56.2	40.1	48.1	16.1	79	83	23.27	169
1902	29.906	56.9	42.4	49.6	14.5	84	87	22.53	176
1903	29.883	55.8	43.0	49.4	12.8	82	84	35.75	215
1904	29.988	55.7	42.8	49.2	12.9	80	84	22.41	177
Means	29.957	55.9	40.8	48.4	15.1	82	86	27.08	185

A remarkable feature of the year has been the amount of brilliant sunshine registered, the total being greater than last year and much in excess of inland stations comparable with Cheltenham.—See list at end of report.

The mean of atmospheric pressure was higher than the average of past years, although it was great the first half of the year. The range of pressure was very confined from April, excepting October and November. During July the earthquake centred in North Midlands was felt locally.

Temperatures have not been extreme, thunderstorms during four months only, those on the 23rd and 24th of August being the only ones of any moment.

Snow was light throughout the year, and fogs, which have been very prevalent all over England, were only heavy here in December.

Total rainfall is 5 inches under the average for the past 26 years. Only on one day the amount exceeded one inch, and on five days only was the total between half and one inch.

JANUARY.—Atmospheric pressure was great the early part of the month, the barometer rising slightly towards the 7th, again steadily falling to the 14th, reaching its lowest point, which was unusually low, gradually rising to the 22nd, the highest reached during the month, then continuing an uneven course.

Range of pressure 1·834 inches.

Temperature on the first four days was low, but at times of reading—9 a.m. and 9 p.m.—the thermometers showed, and by the indices which were 3 or 4 degrees lower, that the extremes were not maintained for a great length of time. On one day only between the 5th and 11th did the thermometer in screen register below freezing.

On Saturday, the 2nd, a slight silver thaw took place, although only a very thin coating, consequently the inconvenience locally was not nearly so great as in many cases.

Wednesday evening, the 13th, in common with many other places, we experienced a high wind in the morning, rain later, hail with rain at 4 p.m., lightning being visible during the evening, distant thunder was heard by some, but the main of the storm was further North.

In some parts of England Thursday, 21st, will be remembered as one of the densest fogs experienced for many years, locally it was not so bad as most places. Although Cheltenham had its spells of density, the sun was to be seen at intervals during the day—over one hour being registered—and on Cleeve Hill brilliant sunshine was experienced for several hours.

Winds generally Southerly and very light, seventeen observations taken were recorded calm either morning or evening.

Rainfall less than January, 1903, by half an inch.

FEBRUARY.—Barometer was steady until Sunday evening, the 7th, when it fell sharply during the night, and continued to fall until 2.45 p.m. on Monday, the 8th, the reading at that time being 28·810, by evening it had recovered $\frac{1}{10}$ of an inch.

Very light snow fell from 11 p.m. on Thursday until about noon on Friday, although the total amount of snow was slight, it was almost continuous for that time, sleet and rain following.

From the 14th the weather was pleasant on most days.

Wednesday, the 17th, for a few hours mid-day, also Thursday the 18th, and Monday the 21st, were very acceptable spring-like days. A sharp frost occurred after 9 p.m. on Thursday night the 18th, showing ten degrees of frost on the grass during the night; at 9 a.m. on Friday the 19th, the sun was shining brightly and solar radiation thermometer registered 64 degrees; during Saturday the 20th, it registered 102 degrees.

A sharp frost occurred Sunday night the 28th; at 9 p.m. the thermometer on grass registered seven and a half degrees of frost, by 9 a.m. the following morning it had fallen six degrees lower and risen to 30 degrees.

Rainfall greater than previous Februaries for 19 years, the total being three times the amount of the corresponding period for last year, which was unusually fine throughout. The amount for the month was

3.67 inches, of which 3.08 inches fell previous to the 15th. The rainfall for the 9th and 12th totalled 1.31 inches.

Bright sunshine was registered on 21 days, but the total was 10 hours less than last year. On the 18th and 19th it was shining almost continuously from sunrise to sunset each day.

MARCH.—Atmospheric pressure has been light during the month, the barometer was very steady up to the 6th, falling until midnight on the 7th, then steadily rising on the 11th, falling until the 14th, sharply rising on the 15th, and, excepting a slight rise on the 23rd, it remained steady until the 28th, falling nearly an inch between midday on 28th and midnight on 29th. Range of pressure 1.131 inch.

The second week of the month seemed almost ideal. Practically no rain, a greater portion of bright sunshine than many places, atmosphere dry and temperature pleasant; on two nights the thermometer registered low. At times of observation sky was cloudless both morning and evening on four days consecutively. On three days the solar-radiation thermometer registered over 100 degrees. The bright sunshine on the 9th, 11th, 12th, and 13th was practically continuous, there being but few clouds.

Temperature has been lower than last year, keeping back the early buds. The month has been drier and pleasanter than last year, total number of rainy days being seven less than 1903, and amount of rain this month less than half, whilst bright sunshine was experienced each day but six, the maximum daily amount of seven hours twenty minutes being registered on three days.

APRIL.—Atmospheric pressure during the month has at no time been high, early on the 6th the mercury fell, and rose again $\frac{1}{8}$ of an inch, keeping fairly even until the 11th; during the 12th it fell to the lowest point reached in the month, remaining low until mid-day on the 15th, when it steadily rose until mid-day on the 20th, falling slightly on the 21st, and again sharply during the morning of 23rd, recovering during the 24th, maintaining a fairly even level the remainder of month. Range of pressure 1.893 inch.

The month has been a very great contrast to the April of last year, the entire absence of frost—with twenty-five hours more bright sunshine than April, 1903,—gives the appearance of every indication of a bountiful supply of fruit to make up the loss last year.

Solar radiation temperature has, on nine days this month, exceeded the highest of April, 1903, that being 13 degrees lower than the maximum for this month.

Ten hours of continuous bright sunshine—excepting for two breaks of fifteen minutes each—was registered on Wednesday the 6th, and on Monday the 11th, eleven hours continuous, the total for the week being 20 hours in excess of corresponding days last year.

Rain has been very light, it falling on one day only between the 15th and 30th.

Winds generally mild and pleasant, 80 per cent. of the observations being W., S.W., or S., whilst E. was only registered once; N.E. not at all, and N. three times.

Hail and thunder were experienced for a short time during the afternoon of the 14th.

MAY.—Atmospheric pressure was heavy, the barometer being at no time high and range of pressure very limited, being confined to less

than three parts of an inch. Movements of barometer during the early part of the month were very irregular, the lowest reading was on the 8th, slowly rising to the 13th. A gradual depression followed for three days, afterwards recovering, reaching the highest on the 19th, remaining steady to the end of the month.

Range of pressure 0·718 inch.

The month was an exceptionally fine one, being very hopeful for promising abundant fruit crops. The days and nights were warm, on two nights only was frost registered and then less than one third of a degree. Early part of the month light showers were experienced, but there was no rain from 11th to 19th; half an inch of rain falling during the night of the 20th; on the 27th nearly one and a quarter inch fell. The steady downpours were very acceptable, being unaccompanied by much wind. Total rainfall to the end of the month was three inches less than during the corresponding period of 1903.

JUNE.—Atmospheric pressure for the month was very steady, a slight depression occurring on the 9th and 10th, and again on the 14th and 15th, the only change of any note taking place from the 22nd, when the mercury reached its highest, then falling sharply until early on the 25th when the lowest reading was obtained, otherwise the movements were very easy. Range of pressure 0·875 inch.

The temperatures for the month were very even and the extremes were not great at any time.

Rainfall was below the average and $2\frac{1}{2}$ inches less than the total amount for June 1903. Total rainfall to date being some five inches less than for the first six months of 1903.

An unusual amount of bright sunshine was registered, on 13 days double figures were reached, the total for the month being 41 hours in excess of that registered in London and 40 hours in excess of the corresponding period of last year.

The first half of the month the wind was Easterly, during this time the atmosphere was unusually dull, blight was very prevalent, and through these circumstances much of the fruit crop was spoiled although previously being exceedingly promising.

JULY.—Atmospheric pressure for the first half of the month was irregular, the mercury falling on the 15th, rising the three following days to the highest on the 18th, then steadily falling until the 25th, reaching its lowest point, recovering sharply during the three following days. Range of pressure 0·714 inch.

This month will long be remembered both on account of the tremors of an earthquake which on the 3rd centred in the Midland Counties but was felt locally, although had it not taken place when it did—early on the Sunday afternoon—it would have passed unnoticed by very many more persons.

The other notable feature was the exceptional dryness during the middle of the month. But for a light shower on the 19th there was no rain from the 4th to the 22nd. Notwithstanding the long spell of heat very little thunder was heard.

Bright sunshine was greater than usual, on eleven days the amount registered each day reached double figures, and on several days it was registered almost continuously when the sun was above the horizon.

Wind South-Westerly and very light.

AUGUST.—Atmospheric pressure was fairly even for the first nine days, reaching its highest point on the 8th, a fall occurring on the 11th, recovering again next day; a sharp depression between the 13th and 16th, falling again on the 17th to the lowest point during the month. From the 20th to the 29th it was fairly even, the last two days of the month being lower. Range of pressure 0.557 inch.

The temperature was very hot during the week, the maximum shade temperature of Wednesday, the 3rd, being the same as July 10th, which has been the hottest experienced this season, although on the 3rd, London registered some five or six degrees more.

On Tuesday and Wednesday, the 23rd and 24th, thunderstorms were experienced; on the latter day it broke with great suddenness about one p.m., rain fell heavily about two p.m., and was of greater severity than during the storm about four p.m. the same day. Neither storm was directly centred over Cheltenham, and no damage by lightning was reported.

On Saturday and Sunday, the 27th and 28th, sunshine was registered each day continuously. On Monday the 29th, there was nearly 13 hours continuous brilliant sunshine.

Temperatures have been very pleasant, and with abundance of sunshine and little rain, have combined to make this to be remembered as an ideal holiday month, also giving agriculturists an opportunity of well harvesting crops.

Of the total rainfall, more than half of it fell on three days.

Total bright sunshine is 38 hours in excess of that for August, 1903.

SEPTEMBER.—Atmospheric pressure for the month was regular until the 13th, when it fell rapidly, reaching its lowest point on the 14th, rising sharply on the 15th, to its highest on the 18th, falling until the 25th, again recovering, but falling as the month closed. Range of pressure 0.631 inch.

Wednesday, the 14th, being only the second day since the middle of June on which bright sunshine was not registered, since then the weather has been almost ideal for the time of year, the average sunshine for the last four days being $10\frac{1}{2}$ hours, it shining continuously on those days.

Temperatures have been very even and pleasant the entire month, the lowest on the grass being nearly four degrees above freezing.

Rainfall was not heavy, only falling on nine days.

Sunshine a good average, on eight days it reaching double figures, and being registered almost from sunrise to sunset on those days.

Wind, although the daily average is high, only on one or two days has it reached a gale.

OCTOBER.—Atmospheric pressure has been undulating during the month with only one sharp depression, on the 5th and 6th, when it reached the lowest point. The barometer reached a fair level on the 9th, again rising and touching its highest point on the 13th, slowly falling the next four days, again rising until the 19th, dropping to the 23rd, from which it maintained a fairly high and even course to the end of the month. Range of pressure 1.002 inch.

Temperatures have been unusually mild all the month, frost on the grass being registered only four times, the most being a trifle over one degree.

Rainfall has been remarkable in its scarcity, and by the records of

the late Rev. M. A. Smelt—with the exception of 1888—has been the driest October in Cheltenham since 1867.

Wind has been very mild, there being no gales such as are usually experienced at this time of the year.

NOVEMBER—Atmospheric pressure, although light the first two days, increased from the 2nd to the 7th, on Monday the 6th it fell very sharply from 6 a.m. until 5 p.m., when it stood at 29.439 corrected, and rose very rapidly 1.5 inch in the next four hours. From the 7th the barometer rose and fell on alternate days until the 12th, when it steadily rose to the 14th, falling gradually for two days and sharply on the 21st to its lowest level, keeping steadily upward to the end of the month. Range of pressure 1.113 inch.

Mean temperature was about the average. Some very low readings were taken on the grass.

During the third week fog was prevalent for two or three days, but not nearly so troublesome as in London and other places, where the sun was obscured for three or four days. In Cheltenham bright sunshine was registered each day but one.

Monday the 20th was a strange day, the sun shining brightly until 2 p.m. About 3.30 rain commenced and fell heavily, followed by a snow storm, flakes of unusual size falling for some time, then rain again.

From the 22nd there was a fair supply of bright sunshine, two inches of snow, and only a little fog combined to make a pleasant contrast to neighbouring counties, where snow was measured by the foot and frost over a score of degrees with fog all day long.

DECEMBER—Atmospheric pressure was very great the first half of the month when the lowest reading occurred on the 12th, the mercury steadily rising the third week, the highest being on the 19th, but falling again at the end of the month.

A great feature of the second week was the very undulating range of barometer, and the extreme atmospheric pressure was very much marked on the 6th, 9th and 12th. At 9 a.m. on Monday, the 12th, the barometer stood at 28.938 corrected, a point not reached within the last 15 months, and strangely, it has not been accompanied by any out-of-the-way occurrences.

The range of pressure 0.701.

Temperatures have been moderately high during the month, although a few low readings were registered on the grass. Light snows occurred twice during the month, fogs were very prevalent throughout the country towards the end of the month, establishing a record for London, but no great inconvenience was caused locally.

Winds were high the early part of December.

Rainfall light and very much under the average for December, the total for the year being 13 inches less than 1903, and some 5 inches under the average of the past 24 years.

Bright sunshine for the year totals 100 hours more than last.

RAINFALL IN THE COUNTY OF GLOUCESTER IN 1904.

STATION.	OBSERVER.	RAIN-FALL.	RAINY DAYS.
		Inches.	
Birdlip Hill	A. S. Phelps	26·76	181
Beckford	F. Slade	21·79	196
Moreton-in-Marsh	W. Arkell	29·81	158
Cheltenham	A. C. Saxby	22·41	177
Bourton-on-the-Water ...	E. W. Kendall	27·64	153
Great Barrington	H. J. Barrett	22·97	145
R.A.C., Cirencester ...	G. T. Locke	21·77	189
Berkeley	R. Shore	26·10	153
Lechlade	A. Reeves	23·37	117
Over Court	R. C. C. Lippincott ...	30·00	216
Clifton... ..	R. F. Sturge	32·22	189
Charlton Kings	J. Phillips	25·08	
Prestbury	Miss Kerr	22·50	155

Cheltenham Rainfall is again low, in fact the smallest total but one in the county, and although the number of days on which rain fell is high, we had 29 days on which the smallest appreciable quantity, i.e., 1-100 part of an inch fell during the 24 hours. It is strange that Beckford with the smallest rainfall in the county registered rain on more days than any other station excepting one.

COMPARATIVE TABLE OF BRIGHT SUNSHINE
REGISTERED AT INLAND STATIONS
DURING THE YEAR 1904.

	HOURS.	MIN.
Cheltenham - - - - -	Total—1603	8
Cambridge - - - - -	„ 1599	8
Belvoir Castle - - - - -	„ 1515	15
Berkhamsted - - - - -	„ 1490	20
Oxford - - - - -	„ 1476	15
Bath - - - - -	„ 1430	7
Nottingham - - - - -	„ 1388	10
Buxton - - - - -	„ 1326	5
Sheffield - - - - -	„ 1324	8
Birmingham - - - - -	„ 1261	15
Coventry - - - - -	„ 1208	7

